2 CHAPTER

Data Interpretation

LOGIC BASED DI

1995

Directions for Questions 1 to 4: *Answer the questions based on the following information.*

Four sisters — Suvarna, Tara, Uma and Vibha are playing a game such that the loser doubles the money of each of the other players from her share. They played four games and each sister lost one game in alphabetical order. At the end of fourth game, each sister had Rs.32.

1. How many rupees did Suvarna start with?

(a) Rs.60 (b) Rs.34

(c) Rs.66 (d) Rs.28

2. Who started with the lowest amount?

(a) Suvarna (b) Tara

(c) Uma (d) Vibha

3. Who started with the highest amount?

(a) Suvarna (b) Tara

(c) Uma (d) Vibha

4. What was the amount with Uma at the end of the second round?

(a) 36 (b) 72

(c) 16 (d) None of these

2000

Directions for Questions 5 and 6: *Answer the questions based on the following information.*

A, B and C are three numbers. Let

@ (A, B) = Average of A and B,

/ (A, B) = Product of A and B, and

× (A, B) = The result of dividing A by B.

5. The sum of A and B is given by

(a) / (@ (A, B), 2)

(b) × (@ (A, B), 2)

(c) @ (/ A, B), 2)

(d) @ (× (A, B), 2)

6. Average of A, B and C is given by

(a) @ (/ (@ (/ (B, A), 2), C), 3)

(b) × (@ (/ (@ (B, A), 3), C), 2)

(c) / (×(× (@ (B, A), 2), C), 3)

(d) / (× (@ (/ (@ (B, A) 2), C), 3), 2)

2002

7. Two boys are playing on a ground. Both the boys are less than 10 years old. Age of the younger boy is equal to the cube root of the product of the age of the two boys. If we place the digit representing the age of the younger boy to the left of the digit representing the age of the elder boy, we get the age of father of the younger boy. Similarly, if we place the digit representing the age of the elder boy to the left of the digit representing the age of the younger boy and divide the figure by 2, we get the age of mother of the younger boy. The mother of the younger boy is younger to his father by 3 years. Then, what is the age of the younger boy?

(a) 3 (b) 4

(c) 2 (d) None of these

Directions for Questions 8 to 11: *Answer the questions based on the information given below.*

A country has the following types of traffic signals.

3 red lights = stop

2 red lights = turn left

1 red light = turn right

3 green lights = go at 100 km/hr speed

2 green lights = go at 40 km/hr speed

1 green light = go at 20 km/hr speed

A motorist starts at a point on a road and follows all traffic signals. His car is heading towards the north.

He encounters the following signals (the time mentioned in each case below is applicable after crossing the previous signal).

Starting point - 1 green light

After half an hour, 1st signal - 2 red and 2 green lights

After 15 min, 2nd signal - 1 red light

After half an hour, 3rd signal - 1 red and 3 green lights

After 24 min, 4th signal - 2 red and 2 green lights

After 15 min, 5th signal - 3 red lights

8. The total distance travelled by the motorist from the starting point till the last signal is

(a) 90 km (b) 100 km

(c) 120 km (d) None of these

9. What is the position (radial distance) of the motorist when he reaches the last signal?

(a) 45 km directly north of the starting point

(b) 30 km directly to the east of the starting point

(c) 50 km away to the north-east of the starting point

(d) 45 km away to the north-west of the starting point

10. After the starting point, if the 1st signal were 1 red and 2 green lights, what would be the final position of the motorist?

(a) 30 km to the west and 20 km to the south

(b) 30 km to the west and 40 km to the north

(c) 50 km to the east and 40 km to the north

(d) Directly 30 km to the east

11. If at the starting point, the car was heading towards south, what would be the final position of the motorist?

(a) 30 km to the east and 40 km to the south

(b) 50 km to the east and 40 km to the south

(c) 30 km to the west and 40 km to the south

(d) 50 km to the west and 20 km to the north

Directions for Questions 12 to 17: *Answer these questions based on the tables given below:*

There are 6 refineries, 7 depots and 9 districts. The refineries are BB, BC, BD, BE, BF and BG. The depots are AA, AB, AC, AD, AE, AF and AG. The districts are AAA, AAB, AAC, AAD, AAE, AAF, AAG, AAH, and AAI. Table A gives the cost of transporting one unit from refinery to depot. Table B gives the cost of transporting one unit from depot to a district.

Table A

	BB	BC	BD	BE	BF	BG
AA	928.2	537.2	567.8	589.9	589.9	800.1
AB	311.1	596.7	885.7	759.9	759.9	793.9
AC	451.1	0	320.1	780.1	720.7	1000.1
AD	371.1	150.1	350.1	750.1	650.4	980.1
AE	1137.3	314.5	0	1157.7	1157.7	1023.4
AF	617.1	516.8	756.5	1065.9	1065.9	406.3
AG	644.3	299.2	537.2	1093.1	1093.1	623.9

Table B

	AA	AB	AC	AD	AE	AF	AG
AAA	562.7	843.2	314.5	889.1	0	754.8	537.2
AAB	532.7	803.2	284.5	790.5	95.2	659.6	442
AAC	500.7	780.2	0	457.3	205.7	549.1	331.5
AAD	232.9	362.1	286.2	275.4	523.6	525.3	673.2
AAE	345.1	268.6	316.2	163.2	555.9	413.1	227.8
AAF	450.1	644.3	346.2	372.3	933.3	402.9	379.1
AAG	654.5	0	596.7	222.7	885.7	387.6	348.5
AAH	804.1	149.6	627.2	360.4	1035.3	537.2	498.1
AAI	646	255	433.5	137.7	698.7	112.2	161.5

12. What is the least cost of sending one unit from any refinery to any district?

(a) 95.2 (b) 0

(c) 205.7 (d) 284.5

13. What is the least cost of sending one unit from any refinery to the district AAB?

(a) 0 (b) 284.5

(c) 95.2 (d) None of these

14. What is the least cost of sending one unit from refinery BB to any district?

(a) 284.5 (b) 311.1

(c) 451.1 (d) None of these

15. What is the least cost of sending petrol from refinery BB to district AAA?

(a) 765.6 (b) 1137.3

(c) 1154.3 (d) None of these

16. How many possible ways are there for sending petrol from any refinery to any district?

(a) 63 (b) 42

(c) 54 (d) 378

17. The largest cost of sending petrol from any refinery to any district is

(a) 2172.6 (b) 2193.0

(c) 2091.0 (d) None of these

Directions for Questions 18 to 20: *Answer the questions based on the table given below.*

The table below gives information about four different crops, their different quality categories and the regions where they are cultivated. Based on the information given in the table answer the questions below.

Type of Crop	Quality	Region
Crop - 1	High	R1, R2, R3, R4, R5
	Medium	R6, R7, R8
	Low	R9, R10, R11
Crop - 2	High	R5, R8, R12
	Medium	R9, R13
	Low	R6, R7, R8
Crop - 3	High	R2, R6, R7, R13
	Medium	R3, R9, R11
	Low	R1, R4
Crop - 4	High	R3, R10, R11
	Medium	R1, R2, R4
	Low	R5, R9

18. How many regions produce medium qualities of Crop-1 or Crop-2 and also produce low quality of Crop-3 or Crop-4?

(a) Zero (b) One

(c) Two (d) Three

19. Which of the following statements is true?

(a) All medium quality Crop-2 producing regions are also high quality Crop-3 producing regions.

(b) All high quality Crop-1 producing regions are also medium and low Crop-4 producing regions.

(c) There are exactly four Crop-3 producing regions, which also produce Crop-4 but not Crop-2.

(d) Some Crop-3 producing regions produce Crop-1, but not high quality Crop-2.

20. How many low quality Crop-1 producing regions are either high quality Crop-4 producing regions or medium quality Crop-3 producing regions?

(a) One (b) Two

(c) Three (d) Zero

Direction for Question 21: *The question is followed by two statements, A and B. Answer the question using the following instructions.*

Choose (a) if the question can be answered by one of the statements alone but not by the other.

Choose (b) if the question can be answered by using either statement alone.

Choose (c) if the question can be answered by using both the statements together, but cannot be answered by using either statement alone.

Choose (d) if the question cannot be answered even by using both statements together.

21. In a hockey match, the Indian team was behind by 2 goals with 5 min remaining. Did they win the match?

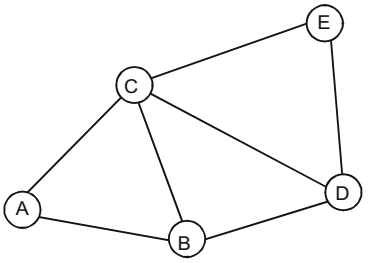
A. Deepak Thakur, the Indian striker, scored 3 goals in the last 5 min of the match.

B. Korea scored a total of 3 goals in the match.

2003 (R)

Directions for Questions 22 and 23: *Answer the questions on the basis of the following information.*

Shown below is the layout of major streets in a city.



Two days (Thursday and Friday) are left for campaigning before a major election, and the city administration has received requests from five political parties for taking out their processions along the following routes.

Congress : A-C-D-E BJP : A-B-D-E

SP : A-B-C-E BSP : B-C-E

CPM : A-C-D

Street B-D cannot be used for a political procession on Thursday due to a religious procession. The district administration has a policy of not allowing more than one procession to pass along the same street on the same day. However, the administration must allow all parties to take out their procession during these two days.

22. Congress procession can be allowed

(a) only on Thursday

(b) only on Friday

(c) on either day

(d) only if the religious procession is cancelled

23. Which of the following is NOT true?

(a) Congress and SP can take out their processions on the same day.

(b) The CPM procession cannot be allowed on Thursday.

(c) The BJP procession can only take place on Friday.

(d) Congress and BSP can take out their processions on the same day.

Directions for Questions 24 to 28: *Answer the questions on the basis of the following information.*

Recently, the answers of a test held nationwide were leaked to a group of unscrupulous people. The investigative agency has arrested the mastermind and nine other people A, B, C, D, E, F, G, H and I in this

matter. Interrogating them, the following facts have been obtained regarding their operation. Initially the mastermind obtains the correct answer-key. All the others create their answer-key in the following manner. They obtain the answer-key from one or two people who already possess the same. These people are called his/her 'sources'. If the person has two sources, then he/she compares the answer-keys obtained from both sources. If the key to a question from both sources is identical, it is copied, otherwise it is left blank. If the person has only one source, he/she copies the source's answers into his/her copy. Finally, each person compulsorily replaces one of the answers (not a blank one) with a wrong answer in his/her answer key.

The paper contained 200 questions; so the investigative agency has ruled out the possibility of two or more of them introducing wrong answers to the same question. The investigative agency has a copy of the correct answer key and has tabulated the following data. These data represent question numbers.

Name	Wrong Answer(s)	Blank Answer(s)
A	46	—
B	96	46, 90, 25
C	27, 56	17, 46, 90
D	17	—
E	46, 90	—
F	14, 46	92, 90
G	25	—
H	46, 92	—
I	27	17, 46, 90

24. Which one among the following must have two sources?

(a) A
(b) B
(c) C
(d) D

25. How many people (excluding the mastermind) needed to make answer-keys before C could make his answer-key?

(a) 2 (b) 3
(c) 4 (d) 5

26. Both G and H were sources to

(a) F (b) B
(c) I (d) None of the nine

27. Which of the following statements is true?

(a) C introduced the wrong answer to question 27.
(b) E introduced the wrong answer to question 46.
(c) F introduced the wrong answer to question 14.
(d) H introduced the wrong answer to question 46.

28. Which of the following two groups of people had identical sources?

I. A, D and G
II. E and H

(a) Only I
(b) Only II
(c) Neither I nor II
(d) Both I and II

2003 (L)

Directions for Questions 29 and 30: *Answer the questions on the basis of the information given below.*

Some children were taking free throws at the basketball court in school during lunch break. Below are some facts about how many baskets these children shot.

i. Ganesh shot 8 baskets less than Ashish.
ii. Dhanraj and Ramesh together shot 37 baskets.
iii. Jugraj shot 8 baskets more than Dhanraj.
iv. Ashish shot 5 baskets more than Dhanraj.
v. Ashish and Ganesh together shot 40 baskets.

29. Which of the following statements is true?

(a) Ramesh shot 18 baskets and Dhanraj shot 19 baskets.
(b) Ganesh shot 24 baskets and Ashish shot 16 baskets.
(c) Jugraj shot 19 baskets and Dhanraj shot 27 baskets.
(d) Dhanraj shot 11 baskets and Ashish shot 16 baskets.

30. Which of the following statements is true?

(a) Dhanraj and Jugraj together shot 46 baskets.
(b) Ganesh shot 18 baskets and Ramesh shot 21 baskets.
(c) Dhanraj shot 3 more baskets than Ramesh.
(d) Ramesh and Jugraj together shot 29 baskets.

Directions for Questions 31 to 33: *Answer the questions on the basis of the information given below.*

Five women decided to go shopping to M.G. Road, Bangalore. They arrived at the designated meeting place

in the following order: 1. Archana, 2. Chellamma, 3. Dhenuka, 4. Helen, and 5. Shahnaz. Each woman spent at least Rs. 1000. Below are some additional facts about how much they spent during their shopping spree.

i. The woman who spent Rs.2234 arrived before the lady who spent Rs.1193.

ii. One woman spent Rs.1340 and she was not Dhenuka.

iii. One woman spent Rs.1378 more than Chellamma.

iv. One woman spent Rs.2517 and she was not Archana.

v. Helen spent more than Dhenuka.

vi. Shahnaz spent the largest amount and Chellamma the smallest.

31. What was the amount spent by Helen?

(a) Rs.1193 (b) Rs.1340

(c) Rs.2234 (d) Rs.2517

32. Which of the following amounts was spent by one of them?

(a) Rs. 1139 (b) Rs. 1378

(c) Rs. 2571 (d) Rs. 2718

33. The woman who spent Rs. 1193 is

(a) Archana (b) Chellamma

(c) Dhenuka (d) Helen

Directions for Questions 34 to 36: *Answer the questions on the basis of the information given below.*

Five friends meet every morning at Sree Sagar restaurant for an idli-vada breakfast. Each consumes a different number of idlis and vadas. The number of idlis consumed are 1, 4, 5, 6, and 8, while the number of vadas consumed are 0, 1, 2, 4, and 6. Below are some more facts about who eats what and how much.

i. The number of vadas eaten by Ignesh is three times the number of vadas consumed by the person who eats four idlis.

ii. Three persons, including the one who eats four vadas eat without chutney.

iii. Sandeep does not take any chutney.

iv. The one who eats one idli a day does not eat any vadas or chutney. Further, he is not Mukesh.

v. Daljit eats idli with chutney and also eats vada.

vi. Mukesh, who does not take chutney, eats half as many vadas as the person who eats twice as many idlis as he does.

vii. Bimal eats two more idlis than Ignesh, but Ignesh eats two more vadas than Bimal.

34. Which one of the following statements is true?

(a) Daljit eats 5 idlis (b) Ignesh eats 8 idlis

(c) Bimal eats 1 idli. (d) Bimal eats 6 idlis.

35. Which of the following statements is true?

(a) Sandeep eats 2 vadas.

(b) Mukesh eats 4 vadas.

(c) Ignesh eats 6 vadas.

(d) Bimal eats 2 vadas.

36. Which of the following statements is true?

(a) Mukesh eats 8 idlis and 4 vadas but no chutney.

(b) The person who eats 5 idlis and 1 vada does not take chutney.

(c) The person who eats equal number of vadas and idlis also takes chutney.

(d) The person who eats 4 idlis and 2 vadas also takes chutney.

Direction for question 37 : *The question has two statements: A and B.*

Choose (a) if the question can be answered by one of the statements alone but not by the other.

Choose (b) if the question can be answered by using either statement alone.

Choose (c) if the question can be answered by using both the statements together but cannot be answered using either statement alone.

Choose (d) if the question cannot be answered even by using both the statements A and B.

37. A game consists of tossing a coin successively. There is an entry fee of Rs. 10 and an additional fee of Re. 1 for each toss of coin. The game is considered to have ended normally when the coin turns heads on two consecutive throws. In this case the player is paid Rs. 100. Alternatively, the player can choose to terminate the game prematurely after any of the tosses. Ram has incurred a loss of Rs. 50 by playing this game. How many times did he toss the coin?

A. The game ended normally.

B. The total number of tails obtained in the game was 138.

2004

Directions for Questions 38 to 41: *Answer the questions on the basis of the information given below.*

The Dean's office recently scanned student results into the central computer system. When their character reading software cannot read something, it leaves the space blank. The scanner output reads as follows:

Name	Finance	Marketing	Statistics	Strategy	Operations	GPA
Aparna		B	F			1.4
Bikas	D	D	F	F		
Chandra		D	A	F	F	2.4
Deepak	A	B		D	D	3.2
Fazal	D	F	B		D	2.4
Gowri	C	C	A		B	3.8
Hari		B	A		D	2.8
Ismet			B		A	
Jagdeep	A	A	B		C	3.8
Kunal	F		A	F	F	1.8
Leena	B	A		B	F	3.2
Manab			A	B	B	
Nisha	A	D	B	A	F	3.6
Osman	C		B	B	A	4.6
Preeti	F	D		D		3.2
Rahul	A	C	A		F	4.2
Sameer		C	F	B		
Tara	B					2.4
Utkarsh			F	C	A	3
Vipul	A		C	C	F	2.4

In the grading system, A, B, C, D, and F grades fetch 6, 4, 3, 2, and 0 grade points respectively. The Grade Point Average (GPA) is the arithmetic mean of the grade points obtained in the five subjects. For example Nisha's GPA is (6 + 2 + 4 + 6 + 0) / 5 = 3.6. Some additional facts are also known about the students' grades. These are

(a) Vipul obtained the same grade in Marketing as Aparna obtained in Finance and Strategy.

(b) Fazal obtained the same grade in Strategy as Utkarsh did in Marketing.

(c) Tara received the same grade in exactly three courses.

38. What grade did Preeti obtain in Statistics?

(a) A (b) B

(c) C (d) D

39. In Operations, Tara could have received the same grade as

(a) Ismet (b) Hari

(c) Jagdeep (d) Manab

40. In Strategy, Gowri's grade point was higher than that obtained by

(a) Fazal (b) Hari

(c) Nisha (d) Rahul

41. What grade did Utkarsh obtain in Finance?

(a) B (b) C

(c) D (d) F

Directions for Questions 42 to 45: *Answer the questions on the basis of the information given below.*

Prof. Singh has been tracking the number of visitors to his homepage. His service provider has provided him with the following data on the country of origin of the visitors and the university they belong to:

Number of visitors

	DAY		
COUNTRY	**1**	**2**	**3**
Canada	2	0	0
Netherlands	1	1	0
India	1	2	0
UK	2	0	2
USA	1	0	1

Number of visitors

	DAY		
UNIVERSITY	**1**	**2**	**3**
University 1	1	0	0
University 2	2	0	0
University 3	0	1	0
University 4	0	0	2
University 5	1	0	0
University 6	1	0	1
University 7	2	0	0
University 8	0	2	0

42. To which country does University 5 belong?

(a) India or Netherlands but not USA

(b) India or USA but not Netherlands

(c) Netherlands or USA but not India

(d) India or USA but not UK

43. University 1 can belong to

(a) UK

(b) Canada

(c) Netherlands

(d) USA

44. Which among the listed countries can possibly host three of the eight listed universities?

(a) None

(b) Only UK

(c) Only India

(d) Both India and UK

45. Visitors from how many universities from UK visited Prof. Singh's homepage in the three days?

(a) 1 (b) 2

(c) 3 (d) 4

Directions for Questions 46 to 49: *Answer the questions on the basis of the information given below.*

A study was conduced to ascertain the relative importance that employees in five different countries assigned to five different traits in their Chief Executive Officers. The traits were compassion (C), decisiveness (D), negotiation skills (N), public visibility (P), and vision (V). The level of dissimilarity between two countries is the maximum difference in the ranks allotted by the two countries to any of the five traits. The following table indicates the rank order of the five traits for each country.

	Country				
Rank	**India**	**China**	**Japan**	**Malaysia**	**Thailand**
1	C	N	D	V	V
2	P	C	N	D	C
3	N	P	C	P	N
4	V	D	V	C	P
5	D	V	P	N	D

46. Which of the following pairs of countries are most dissimilar?

(a) China and Japan

(b) India and China

(c) Malaysia and Japan

(d) Thailand and Japan

47. Which of the following countries is least dissimilar to India?

(a) China

(b) Japan

(c) Malaysia

(d) Thailand

48. Which amongst the following countries is most dissimilar to India?

(a) China

(b) Japan

(c) Malaysia

(d) Thailand

49. Three of the following four pairs of countries have identical levels of dissimilarity. Which pair is the odd one out?

(a) Malaysia and China

(b) China and Thailand

(c) Thailand and Japan

(d) Japan and Malaysia

2005

Directions for Questions 50 to 52: *Answer the questions on the basis of the information given below:*

The table below reports the gender, designation and age-group of the employees in an organization. It also provides information on their commitment to projects coming up in the months of January (Jan), February (Feb), March (Mar) and April (Apr), as well as their interest in attending workshops on: Business Opportunities (BO), Communication Skills (CS), and E-Governance (EG).

Sl. No.	Name	Gender	Designation	Age group	Committed to projects during	Interested in workshop on
1	Anshul	M	Mgr	Y	Jan, Mar	CS, EG
2	Bushkant	M	Dir	I	Feb, Mar	BO, EG
3	Charu	F	Mgr	I	Jan, Feb	BO, CS
4	Dinesh	M	Exe	O	Jan, Apr	BO, CS, EG
5	Eashwaran	N	Dir	O	Feb, Apr	BO
6	Fatima	F	Mgr	Y	Jan, Mar	BO, CS
7	Gayatri	F	Exe	Y	Feb, Mar	EG
8	Hari	M	Mgr	I	Feb, Mar	BO, CS, EG
9	Indira	F	Dir	O	Feb, Apr	BO, EG
10	John	M	Dir	Y	Jan, Mar	BO
11	Kalindi	F	Exe	I	Jan, Apr	BO, CS, EG
12	Lavanya	F	Mgr	O	Feb, Apr	CS, EG
13	Mandeep	M	Mgr	O	Mar, Apr	BO, EG
14	Nandlal	M	Dir	I	Jan, Feb	BO, EG
15	Parul	F	Exe	Y	Feb, Apr	CS, EG
16	Rahul	M	Mgr	Y	Mar, Apr	CS, EG
17	Sunita	F	Dir	Y	Jan, Feb	BO, EG
18	Urvashi	F	Exe	I	Feb, Mar	EG
19	Yamini	F	Mgr	O	Mar, Apr	CS, EG
20	Zeena	F	Exe	Y	Jan, Mar	BO, CS, EG

M = Male, F = Female; Exe = Executive, Mgr = Manager, Dir = Director;

Y = Young, I = In between, O = Old

For each workshop, exactly four employees are to be sent, of which at least two should be Females and at least one should be Young. No employee can be sent to a workshop in which he she is not interested in. An employee cannot attend the workshop on

- Communication Skills, if he/she is committed to internal projects in the month of January.
- Business Opportunities, if he/she is committed to internal projects in the month of February.
- E-governance, if he/she is committed to internal projects in the month of March.

50. Assuming that Parul and Hari are attending the workshop on Communication Skills (CS), then which of the following employees can possibly attend the CS workshop?

(a) Rahul and Yamini (b) Dinesh and Lavanya

(c) Anshul and Yamini (d) Fatima and Zeena

51. How many Executives (Exe) cannot attend more than one workshop?

(a) 2 (b) 3

(c) 15 (d) 16

52. Which set of employees cannot attend any of the workshops?

(a) Anshul, Charu, Eashwaran and Lavanya

(b) Anshul, Bushkant, Gayatri, and Urvashi

(c) Charu, Urvashi, Bushkant and Mandeep

(d) Anshul, Gayatri, Eashwaran and Mandeep

Directions for Questions 53 to 56: *Answer the questions on the basis of the information given below:*

In the table below is the listing of players, seeded from highest (#1) to lowest (#32), who are due to play in an Association of Tennis Players (ATP) tournament for women. This tournament has four knockout rounds before the final, i.e., first round, second round, quarterfinals, and semi-finals. In the first round, the highest seeded player plays the lowest seeded player (seed #32) which is designated match No. 1 of first round; the 2nd seeded player plays the 31st seeded player which is designated match No. 2 of the first round, and so on. Thus, for instance, match No. 16 of first round is to be played between 16th seeded player and the 17th seeded player. In the second round, the winner of match No. 1 of first round plays the winner of match No. 16 of first round and is designated match No. 1 of second round. Similarly,

the winner of match No. 2 of first round plays the winner of match No. 15 of first round, and is designated match No. 2 of second round. Thus, for instance, match No. 8 of the second round is to be played between the winner of match No. 8 of first round and the winner of match No. 9 of first round. The same pattern is followed for later rounds as well.

Seed#	Name of Player	Seed#	Name of Player	Seed#	Name of Player
1	Maria Sharapova	12	Mary Pierce	23	Silvia Farina Elia
2	Lindsay Davenport	13	Anastasia Myskina	24	Tatiana Golovin
3	Amelie Mauresmo	14	Alicia Molik	25	Shinobu Asagoe
4	Kim Clijsters	15	Nathalie Dechy	26	Francesca Schiavone
5	Svetlana Kuznetsova	16	Elena Bovina	27	Nicole Vaidisova
6	Elena Dementieva	17	Jelena Jankovic	28	Gisela Dulko
7	Justine Henin	18	Ana Ivanovic	29	Flavia Pennetta
8	Serena Williams	19	Vera Zvonareva	30	Anna Chakvetadze
9	Nadia Petrova	20	Elena Likhovtseva	31	Al Sugiyama
10	Venus Williams	21	Daniela Hantuchova	32	Anna-lena Groenefeld
11	Patty Schnyder	22	Dinara Safina		

53. If there are no upsets (a lower seeded player beating a higher seeded player) in the first round, and only match Nos. 6, 7, and 8 of the second round result in upsets, then who would meet Lindsay Davenport in quarter finals, in case Davenport reaches quarter finals?

(a) Justine Henin (b) Nadia Petrova

(c) Patty Schnyder (d) Venus Williams

54. If Elena Dementieva and Serena Williams lose in the second round, while Justine Henin and Nadia Petrova make it to the semi-finals, then who would play Maria Sharapova in the quarterfinals, in the event Sharapova reaches quarterfinals?

(a) Dinara Safina (b) Justine Henin

(c) Nadia Petrova (d) Patty Schnyder

55. If, in the first round, all even numbered matches (and none of the odd numbered ones) result in upsets, and there are no upsets in the second round, then who could be the lowest seeded player facing Maria Sharapova in semi-finals?

(a) Anastasia Myskina (b) Flavia Pennetta

(c) Nadia Petrova (d) Svetlana Kuznetsova

56. If the top eight seeds make it to the quarterfinals, then who, amongst the players listed below, would definitely not play against Maria Sharapova in the final, in case Sharapova reaches the final?

(a) Amelie Mauresmo

(b) Elena Dementieva

(c) Kim Clijsters

(d) Lindsay Davenport

Directions for Questions 57 to 60: *Answer the questions on the basis of the information given below:*

The table below presents the revenue (in million rupees) of four firms in three states. These firms, Honest Ltd., Aggressive Ltd., Truthful Ltd. and Profitable Ltd. are disguised in the table as A, B, C and D, in no particular order.

States	Firm A	Firm B	Firm C	Firm D
UP	49	82	80	55
Bihar	69	72	70	65
MP	72	63	72	65

Further, it is known that:

- In the state of MP, Truthful Ltd. has the highest market share.
- Aggressive Ltd.'s aggregate revenue differs from Honest Ltd.'s by Rs. 5 million.

57. What can be said regarding the following two statements?

Statement 1: Profitable Ltd. has the lowest share in MP market.

Statement 2: Honest Ltd.'s total revenue is more than Profitable Ltd.

(a) If Statement 1 is true then Statement 2 is necessarily true.

(b) If Statement 1 is true then Statement 2 is necessarily false.

(c) Both Statement 1 and Statement 2 are true.

(d) Neither Statement 1 nor Statement 2 is true.

58. What can be said regarding the following two statements?

Statement 1: Aggressive Ltd.'s lowest revenues are from MP.

Statement 2: Honest Ltd.'s lowest revenues are from Bihar.

(a) If Statement 2 is true then Statement 1 is necessarily false.

(b) If Statement 1 is false then Statement 2 is necessarily true.

(c) If Statement 1 is true then Statement 2 is necessarily true

(d) None of the above.

59. What can be said regarding the following two statements?

Statement 1: Honest Ltd. has the highest share in the UP market.

Statement 2: Aggressive Ltd. has the highest share in the Bihar market.

(a) Both statements could be true.

(b) At least one of the statements must be true.

(c) At most one of the statements is true.

(d) None of the above.

60. If Profitable Ltd.'s lowest revenue is from UP, then which of the following is true?

(a) Truthful Ltd.'s lowest revenues are from MP.

(b) Truthful Ltd.'s lowest revenues are from Bihar.

(c) Truthful Ltd.'s lowest revenues are from UP.

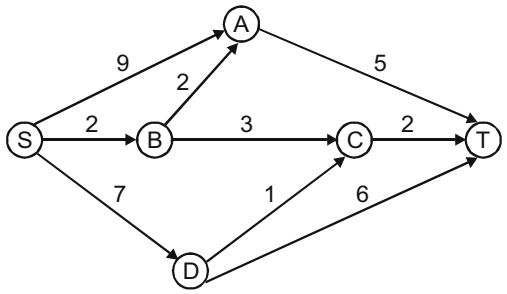
(d) No definite conclusion is possible.

2006

Directions for Questions 61 to 65: *Answer the questions on the basis of the information given below:*

A significant amount of traffic flows from point S to point T in the one-way street network shown below.

Points A, B, C, and D are junctions in the network, and the arrows mark the direction of traffic flow. The fuel cost in rupees for travelling along a street is indicated by the number adjacent to the arrow representing the street.



Motorists travelling from point S to point T would obviously take the route for which the total cost of travelling is the minimum. If two or more routes have the same least travel cost, then motorists are indifferent between them. Hence, the traffic gets evenly distributed among all the least cost routes.

The government can control the flow of traffic only by levying appropriate toll at each junction. For example, if a motorist takes the route S-A-T (using junction A alone), then the total cost of travel would be Rs 14 (i.e., Rs 9 + Rs 5) plus the toll charged at junction A.

61. If the government wants to ensure that no traffic flows on the street from D to T, while equal amount of traffic flows through junctions A and C, then a feasible set of toll charged (in rupees) at junctions A, B, C, and D respectively to achieve this goal is:

(a) 1,5,3,3

(b) 1,4,4,3

(c) 1,5,4,2

(d) 0,5,2,3

(e) 0,5,2,2

62. If the government wants to ensure that all motorists travelling from S to T pay the same amount (fuel costs and toll combined) regardless of the route they choose and the street from B to C is under repairs (and hence unusable), then a feasible set of toll charged (in rupees) at junctions A, B, C, and D respectively to achieve this goal is:

(a) 2,5,3,2

(b) 0,5,3, 1

(c) 1,5,3,2

(d) 2,3,5,1

(e) 1,3,5,1

63. If the government wants to ensure that the traffic at S gets evenly distributed along streets from S to A, from S to B, and from S to D, then a feasible set of toll charged (in rupees) at junctions A, B, C, and D respectively to achieve this goal is:

(a) 0,5,4,1

(b) 0,5,2,2

(c) 1,5,3,3

(d) 1,5,3,2

(e) 0,4,3,2

64. If the government wants to ensure that all routes from S to T get the same amount of traffic, then a feasible set of toll charged (in rupees) at junctions A, B, C, and D respectively to achieve this goal is:

(a) 0,5,2,2 (b) 0,5,4,1

(c) 1,5,3,3 (d) 1,5,3,2

(e) 1,5,4,2

65. The government wants to devise a toll policy such that the total cost to the commuters per trip is minimized. The policy should also ensure that not more than 70 per cent of the total traffic passes through junction B. The cost incurred by the commuter travelling from point S to point T under this policy will be:

(a) Rs. 7 (b) Rs. 9

(c) Rs. 10 (d) Rs. 13

(e) Rs. 14

2007

Directions for Questions 66 to 69: Answer the following questions based on the information given below:

A health-drink company's R&D department is trying to make various diet formulations, which can be used for certain specific purposes. It is considering a choice of 5 alternative ingredients (O, P, Q, R, and S), which can be used in different proportions in the formulations. The table below gives the composition of these ingredients. The cost per unit of each of these ingredients is O: 150, P: 50. Q: 200, R: 500, S: 100.

Ingredient	Composition			
	Carbohydrate%	Protein%	Fat%	Minerals%
O	50	30	10	10
P	80	20	0	0
Q	10	30	50	10
R	5	50	40	5
S	45	50	0	5

66. For a recuperating patient, the doctor recommended a diet containing 10% minerals and at least 30% protein. In how many different ways can we prepare this diet by mixing at least two ingredients?

(a) One

(b) Two

(c) Three

(d) Four

(e) None

67. Which among the following is the formulation having the lowest cost per unit for a diet having 10% fat and at least 30% protein? (The diet has to be formed by mixing two ingredients).

(a) P and Q

(b) P and S

(c) P and R

(d) Q and S

(e) R and S

68. In what proportion P, Q and S should be mixed to make a diet having at least 60% carbohydrate at the lowest cost per unit?

(a) 2 : 1 : 3

(b) 4 : 1 : 2

(c) 2 : 1 : 4

(d) 3 : 1 : 2

(e) 4 : 1 : 1

69. The company is planning to launch a balanced diet required for growth needs of adolescent children. This diet must contain at least 30% each of carbohydrate and protein, no more than 25% fat and at least 5% minerals. Which one of the following combinations of equally mixed ingredients is feasible?

(a) O and P

(b) R and S

(c) P and S

(d) Q and R

(e) O and S

Directions for Questions 70 to 74: *Answer the following questions based on the information given below:*

A low-cost airline company connects ten Indian cities, A to J. The table below gives the distance between a pair of airports and the corresponding price charged by the company. Travel is permitted only from a departure airport to an arrival airport. The customers do not travel by a route where they have to stop at more than two intermediate airports.

Sector No	Airport of Departure	Airport of Arrival	Distance between the Airports (km)	Price (Rs.)
1	A	B	560	670
2	A	C	790	1350
3	A	D	850	1250
4	A	E	1245	1600
5	A	F	1345	1700
6	A	G	1350	2450
7	A	H	1950	1850
8	B	C	1650	2000
9	B	H	1750	1900
10	B	I	2100	2450
11	B	J	2300	2275
12	C	D	460	450
13	C	F	410	430
14	C	G	910	1100
15	D	E	540	590
16	D	F	625	700
17	D	G	640	750
18	D	H	950	1250
19	D	J	1650	2450
20	E	F	1250	1700
21	E	G	970	1150
22	E	H	850	875
23	F	G	900	1050
24	F	I	875	950
25	F	J	970	1150
26	G	I	510	550
27	G	J	830	890
28	H	I	790	970
29	H	J	400	425
30	I	J	460	540

70. What is the lowest price, in rupees, a passenger has to pay for travelling by the shortest route from A to J?

(a) 2275
(b) 2850
(c) 2890
(d) 2930
(e) 3340

71. The company plans to introduce a direct flight between A and J. The market research results indicate that all its existing passengers travelling between A and J will use this direct flight if it is priced 5% below the minimum price that they pay at present. What should the company charge approximately, in rupees, for this direct flight?

(a) 1991
(b) 2161
(c) 2707
(d) 2745
(e) 2783

72. If the airports C, D and H are closed down owing to security reasons, then what would be the minimum price, in rupees, to be paid by a passenger travelling from A to J?

(a) 2275 (b) 2615
(c) 2850 (d) 2945
(e) 3190

73. If the prices include a margin of 10% over the total cost that the company incurs, then what is the minimum cost per kilometer that the company incurs in flying from A to J?

(a) 0.77 (b) 0.88
(c) 0.99 (d) 1.06
(e) 1.08

74. If the prices include a margin of 15% over the total cost that the company incurs, then which among the following is the distance to be covered in flying from A to J that minimizes the total cost per kilometer for the company?

(a) 2170 (b) 2180
(c) 2315 (d) 2350
(e) 2390

Direction for Questions 75: *The question is followed by two statements, A and B.*

Answer each question using the following instructions:

Mark (a) if the question can be answered by using the statement A alone but not by using the statement B alone.

Mark (b) if the question can be answered by using the statement B alone but not by using the statement A alone.

Mark (c) if the question can be answered by using either of the statements alone.

Mark (d) if the question can be answered by using both the statements together but not by either of the statements alone.

Mark (e) if the question cannot be answered on the basis of the two statements.

75. In a football match, at the half-time, Mahindra and Mahindra Club was trailing by three goals. Did it win the match?

A. In the second-half Mahindra and Mahindra Club scored four goals.

B. The opponent scored four goals in the match.

2008

Directions for Questions 76 and 77:

Five horses, Red, White, Grey, Black and Spotted participated in a race. As per the rules of the race, the persons betting on the winning horse get four times the bet amount and those betting on the horse that came in second get thrice the bet amount. Moreover, the bet amount is returned to those betting on the horse that came in third, and the rest lose the bet amount. Raju bets Rs. 3000, Rs. 2000 and Rs. 1000 on Red, White and Black horses respectively and ends up with no profit and no loss.

76. Which of the following cannot be true?

(a) At least two horses finished before Spotted
(b) Red finished last
(c) There were three horses between Black and Spotted
(d) There were three horses between White and Red
(e) Grey came in second

77. Suppose, in addition, it is known that Grey came in fourth. Then which of the following cannot be true?

(a) Spotted came in first
(b) Red finished last
(c) White came in second
(d) Black came in second
(e) There was one horse between Black and White

Directions for Questions 78 to 80: *Answer the following questions based on the information given below:*

For admission to various affiliated colleges, a university conducts a written test with four different sections, each with a maximum of 50 marks. The following table gives the aggregate as well as the sectional cut-off marks fixed by six different colleges affiliated to the university. A student will get admission only if he/she gets marks greater than or equal to the cut-off marks in each of the sections and his/her aggregate marks are at least equal to the aggregate cut-off marks as specified by the college.

	Sectional Cut – off Marks				Aggregate Cut-off Marks
	Section A	Section B	Section C	Section D	
College 1	42	42	42		176
College 2		45	45		175
College 3			46		171
College 4	43			45	178
College 5	45		43		180
College 6		41		44	176

78. Bhama got calls from all colleges. What could be the minimum aggregate marks obtained by her?

(a) 180 (b) 181
(c) 196 (d) 176
(e) 184

79. Charlie got calls from two colleges. What could be the minimum marks obtained by him in a section?

(a) 0 (b) 21
(c) 25 (d) 35
(e) 41

80. Aditya did not get a call from even a single college. What could be the maximum aggregate marks obtained by him?

(a) 181 (b) 176
(c) 184 (d) 196
(e) 190

Directions for Questions 81 to 84: *Answer the following questions based on the information given below:*

In a sports event, six teams (A, B, C, D, E and F) are competing against each other. Matches are scheduled in two stages. Each team plays three matches in stage – I and two matches in Stage – II. No team plays against the same team more than once in the event. No ties are permitted in any of the matches. The observations after the completion of Stage – I and Stage – II are as given below.

Stage-I:

- One team won all the three matches.
- Two teams lost all the matches.
- D lost to A but won against C and F.
- E lost to B but won against C and F.
- B lost at least one match.
- F did not play against the top team of Stage-I.

Stage-II:

- The leader of Stage-I lost the next two matches.
- Of the two teams at the bottom after Stage-I, one team won both matches, while the other lost both matches.
- One more team lost both matches in Stage-II.

81. The two teams that defeated the leader of Stage-I are:

(a) F & D (b) E & F
(c) B & D (d) E & D
(e) F & D

82. The only team(s) that won both matches in Stage-II is (are):

(a) B (b) E & F
(c) A, E & F (d) B, E & F
(e) B & F

83. The teams that won exactly two matches in the event are:

(a) A, D & F (b) D & E
(c) E & F (d) D, E & F
(e) D & F

84. The team(s) with the most wins in the event is (are):

(a) A (b) A & C
(c) F (d) E
(e) B & E

MEMORY BASED QUESTIONS

2009

Directions for questions 85 to 87: *Answer the following questions on the basis of the information given below.*

Priya, Qureshi, Rahul and Sonal are Lawyer, Engineer, Doctor and Cricketer by profession not necessarily in the same order. Each of them lives in a different house among the four adjacent houses that lie in a row. Each house has a distinct colour among red, green, blue and white in no particular order.

Additional Information:

(i) Priya is not a Cricketer and she lives in the house at the extreme left of the row.
(ii) The Engineer stays beside the Doctor and the Lawyer.
(iii) Qureshi is a Doctor and he stays in a green house beside the Cricketer's house.
(iv) Rahul stays in a white house and he is not an Engineer.

85. What is the profession of the person who stays in the blue house?

(a) Lawyer (b) Cricketer
(c) Engineer (d) Cannot be determined

86. Who is the Cricketer among the four people?

(a) Rahul (b) Sonal
(c) Qureshi (d) Cannot be determined

87. Which of the following cannot be a possible combination of name, profession and house-colour?

(a) Priya $\rightarrow$ Lawyer $\rightarrow$ red
(b) Sonal $\rightarrow$ Engineer $\rightarrow$ blue
(c) Qureshi $\rightarrow$ Doctor $\rightarrow$ green
(d) Rahul $\rightarrow$ Cricketer $\rightarrow$ red

2010

Directions for questions 88 to 90: *Answer the questions on the basis of the information given below.*

IILK organized a 2-day Indian Classical Music Event with three slots on each day. Four artists – Subbu, Kumar, Shankar and Kehsanloy – and three bands – Delhi Sea, GTH and Mitti – performed at the event. In each slot, an artist or a band or a combination of an artist and a band performed. No artist performed alone in the last slot of a day and no band performed alone in the first slot.

Whenever Delhi Sea and Mitti performed, they did it in two successive slots with Delhi Sea performing before Mitti. The number of performances given by Shankar was less than that given by GTH and the last performance of Shankar was held before the first performance of GTH. Subbu performed alone only once during the event and that was in the first slot on the second day. The sum of the number of performances given by Mitti, Kehsanloy and Kumar respectively wasn't a prime number. The total number of performances given by the artists was equal to the total number of performances given by the bands.

88. It is known that Kehsanloy performed in the last slot on both the days. If a combination of an artist and a band performed in two of the slots on the second day, then who performed in the second slot on the first day?

(a) Shankar-GTH

(b) Shankar-Mitti

(c) Mitti

(d) Kumar-Mitti

89. If Kumar performed on both the days, then he must have performed with which of the bands?

(a) Delhi Sea

(b) GTH

(c) Mitti

(d) Cannot be determined

90. Which of the following statements cannot be true?

(a) Kehsanloy and GTH performed in the third slot on the first day.

(b) Shankar and Mitti performed in the second slot on the first day.

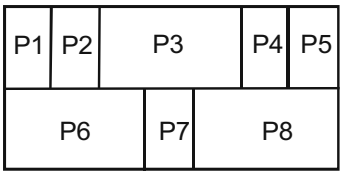
(c) Kumar and GTH performed in the third slot on the second day.

(d) None of these

2011

Directions for questions 91 to 93: *Answer the questions on the basis of the information given below.*

The figure given below shows the plan of a housing complex, which has eight houses – P1, P2, P3, P4, P5, P6, P7 and P8. Each house is owned by a different person among Aadi, Bina, Cara, Diya, Ema, Fiza, Gauri and Hari, not necessarily in the same order. The houses are of two types – Bungalows and Quarters. All the Bungalows are identical; similarly, all the Quarters are also identical. P3, P6 and P8 are the Bungalows and each of them is owned by a different officer. Each Quarter is owned by a different servant. Two persons are called neighbours if their houses share a common wall. E.g. the one who lives in P1 is a neighbour of those who live in P2 and P6.



It is also known that:

(i) The number of neighbours of Aadi is equal to the number of neighbours of Cara.

(ii) Diya is a neighbour of both Aadi and Fiza.

(iii) Ema is an officer and is a neighbour of Gauri who does not live in P7.

(iv) Bina and Hari are not neighbours.

(v) Fiza lives in P8 and Aadi is not her neighbour.

91. Who lives in P7?

(a) Cara (b) Hari

(c) Bina (d) Cannot be determined

92. How many neighbours does Aadi have?

(a) 2 (b) 3

(c) 4 (d) 5

93. Who among the following is definitely not a neighbour of Diya?

(a) Gauri (b) Bina

(c) Ema (d) Cara

Directions for questions 94 to 96: *Answer the questions on the basis of the information given below.*

Four people – Alfred, Buckley, Cherry and Dirk – went to a museum on a Sunday. No two of them reached the museum at the same time. They were wearing shirts of different colours among Purple, Red, White and Yellow, in no particular order. It is also known that:

(i) Cherry was not the first one to reach the museum and he was wearing the Red shirt.

(ii) The person wearing the Yellow shirt reached the museum earlier than Buckley.

(iii) The person wearing the White shirt was not the last one to reach the museum.

(iv) Alfred was not wearing the Yellow shirt.

(v) The person wearing the Purple shirt reached the museum earlier than the person wearing the White shirt.

(vi) Alfred reached the museum before Dirk.

94. Who among the four was wearing the White shirt?

(a) Alfred (b) Buckley

(c) Cherry (d) Dirk

95. Who among the four was the last to reach the museum?

(a) Alfred (b) Buckley

(c) Cherry (d) Dirk

96. Which of the following statement(s) is/are correct?

I. Dirk was wearing the Yellow shirt and he reached the museum before Cherry.

II. Alfred was wearing the White shirt and he reached the museum before Cherry.

(a) Only I (b) Only II

(c) Neither I nor II (d) Both I and II

2012

Directions for Questions 97 to 99 : Answer the questions on the basis of the information given below.

The following table provides partial details about the comparison of the increase in the number of applicants among four streams in education viz. Engineering, Medical Science, Commerce and Arts in the year 2008 as compared to the year 2007. The increase in the number of applicants in the Commerce stream in 2008 as compared to 2007 is 70000 and the average number of applicants in the four streams in 2008 is 400000. Assume that these are the only four streams in the education system. In the given table, the number 20000 under the title 'Commerce' means that the increase in the number of applicants in the Commerce stream in 2008 as compared to the year 2007 is 20000 less than the corresponding increase in the Engineering stream. All the other data in the table should be interpreted similarly.

	Engineering	Medical Sciences	Commerce
Engineering		69000	20000
Medical Sciences	A		B
Commerce	D	C	
Arts	E	59000	F

97. Which of the following is not true?

(a) E + F = 0

(b) C = 49000

(c) E + 10000 = 0

(d) None of these

98. The total number of applicants in the four given streams in 2007 was

(a) 1339000

(b) 1739000

(c) 1439000

(d) 1349000

99. The total increase in the number of applicants in the Arts stream in 2008 as compared to 2007 as a percentage (approximate)of the total number of applicants in the four given streams in 2007 is

(a) 9% (b) 6%

(c) 8% (d) 5%

Directions for Questions 100 to 102 : Answer the questions on the basis of the information given below.

Each of the six persons namely A, B, C, D, E and F took one ball from a box containing 300 balls of six different colours Blue, Black, Red, White, Green and Yellow. Also, the number of balls of each colour is the same. Following is the detail of three statements made by each of the persons. Exactly one of the statements made by each person is true and only one of the statements made about B is correct. Also, balls of two particular colours were not taken by any of the perons.

	Statement I	Statement II	Statement III
A	B took a green ball	C did not take a red ball	E took a blue ball
B	A took a green ball	D did not take a yellow ball	C took a black ball
C	F took a white ball	F did not take a white ball	A did not take a blue ball
D	E took a yellow ball	F took a yellow ball	One green ball was taken by me
E	F took a red ball	B took the same coloured ball as A	B took a blue ball
F	A took a white ball	C took a black ball	D did not take a red ball

100. What is the colour of the ball taken by A?

(a) Green (b) Yellow

(c) Blue (d) Red

101. What is the colour of the ball taken by C?

(a) Green (b) White

(c) Blue (d) Red

102. For how many of the mentioned persons, the exact colour of the balls taken by them can be determined?

(a) 6 (b) 4

(c) 3 (d) 5

Directions for Questions 103 to 105: Answer the questions on the basis of the information given below.

Five friends, viz. Ashok, Amit, Ajay, Akansh and Abhishek are living in five different cities named Kunnamangalam, Joka, Vastrapur, Banerghatta and Prabandhnagar, not necessarily in that order. Their salaries are 700000, 800000, 900000, 1100000, 1300000 (INR per annum), in no particular order. Further, the following information is given about them:

I. Akansh, who does not live in Banerghatta, earns a salary that is a prime number multiple of 100000.

II. Amit made a call to one of his four mentioned friends who lives in Prabandhnagar and earning a perfect square multiple of 100000 INR in salary.

III. Ajay's salary is 100000 INR more than the average salary of Akansh and Ashok

IV. Amit lives in the city, which has the shortest name amongst the above cities.

103. If Akansh lives in Vastrapur, then what is the average salary of the persons living in Banerghatta and Kunnamangalam?

(a) Rs.9 lakh (b) Rs.10 lakh

(c) Rs.12 lakh (d) Data Insufficient

104. Who stays in Prabandhnagar?

(a) Ashok (b) Amit

(c) Abhishek (d) Akansh

105. If Amit and Ajay live in cities with names starting with consecutive alphabets, then who lives in Vastrapur?

(a) Ashok (b) Amit

(c) Abhishek (d) Akansh

2013

Directions for questions 106 : Answer the questions on the basis of the information given below.

A Cricket team of 11 players is to be formed from a group of 15 players—A, B, C, D, E, F, G, H, I, J, K, L, M, N and O. Among the players A, D, K, L, M, N and O are batsmen; B, C, E, F, G and H are bowlers; I and J are wicketkeepers. It is also known that:

I. The team must have at least 5 batsmen and exactly 1 wicketkeeper.

II. H can be selected only if B is selected.

III. F can be selected only if both G and N are selected.

IV. If I is selected, then F is also selected.

V. K and M cannot be selected together for the team. The same is true for B and G.

106. In how many ways can the team be formed?

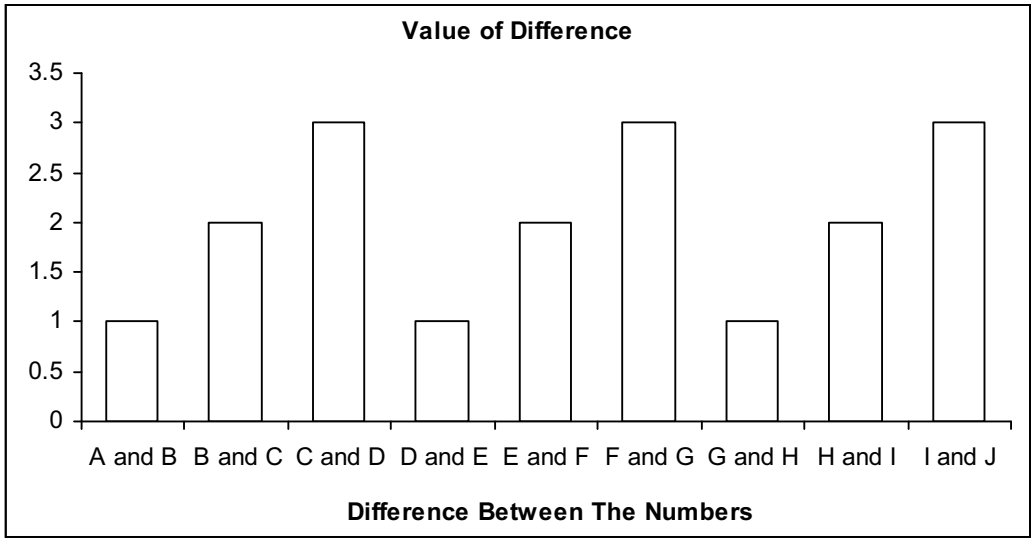
(a) 3 (b) 4

(c) 5 (d) 6

2014

Directions for questions 107 to 109 : Answer the questions on the basis of the information given below.

There are ten real numbers A, B, C, D, E, F, G, H, I. Differences between any two of them are given in the diagram below.



107. If the value of A is known then how many distinct values are possible for J?

(a) 512 (b) 256

(c) 128 (d) None of these

108. If all the 10 numbers from A to J are positive integers then at least how many of them are even?

(a) 3 (b) 4

(c) 5 (d) 6

109. If all the 10 numbers from A to J are positive integers and A is equal to 1 then at a time at most how many of them can be perfect squares?

(a) 7 (b) 9

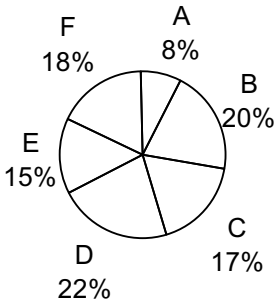
(c) 8 (d) 6

2015

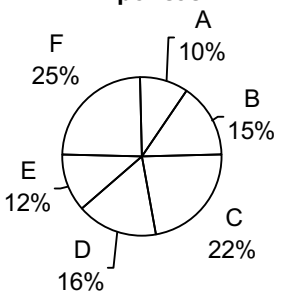
Directions for questions 110 to 113 : Answer the questions on the basis of the information given below.

The following pie chart gives details of the production, expenses and export of the six products manufactured by company KL Enterprises, which manufactures only the given six products, in the year 2014. In the given year, the company followed a very strict internal audit policy and any item that did not meet the specifications were rejected and disposed off. All the products exported were those manufactured in the same year itself.

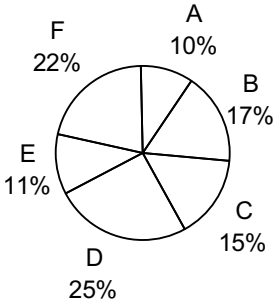
Production



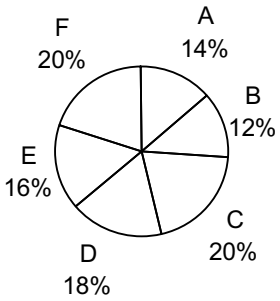
Expenses



Export (by volume)



Export (by value)



Profit = Sales – Expenses

$$\text{Profitability (\%)} = \frac{\text{Profit}}{\text{Expenses}} \times 100$$

Note: Export is the only source of sales.

110. In 2014, the products exported as a percentage of the products manufactured by the company could not be more than

(a) 73.3% (b) 81.81%

(c) 80% (d) 88%

111. In 2014, if product D was a profit making product for the company, what was the maximum number of products that were loss making products for the company?

(a) 2 (b) 3

(c) 4 (d) Zero

112. The export price per unit of which product was the highest?

(a) A (b) C

(c) D (d) E

113. For which product the rejection rate was maximum?

(a) C (b) F

(c) E (d) B

Directions for questions 114 to 117 : Answer the questions on the basis of the information given below.

Sixteen teams – A through P – participated in the Hockey World Cup,2013. The tournament was conducted in two stages. In the first stage, the teams were divided into two groups – teams A to H in group 1 and teams I to P in group 2. In the first stage, each team in a group played exactly one match against every other team in that group. At the end of the first stage, the top four teams from each group advanced to the second stage while the rest got eliminated. The second stage comprised three rounds – Quarterfinals, Semi-finals and Finals. A round involves one match for each team. The winner of a match in a round advanced to the next round, while the loser got eliminated. The team that remains undefeated in the second stage was declared the winner of the tournament.

At the end of the first stage, top four teams in each group were determined on the basis of total number of matches won by individual teams; in case, two or more teams in a group were ended up with the same number of wins, ties were resolved by a series of complex tie-breaking rules to determine the top four positions. The teams qualifying for the second stage from group 1 were A, B, C and D and those from group 2 were I, J, K and L. No match in the tournament ended in a draw/tie.

114. In the tournament, if E and L won the same number of matches and L was the winner of the tournament, then what was the sum of the number of matches won by E and that by L?

115. The number of matches won in the first stage by a team that advanced to the second stage could not be less than

116. How many of the following statements is/are true?

(i) Maximum number of teams which could have one win in the first stage was 6.

(ii) Maximum number of teams which could have three wins in the first stage was 12.

(iii) Number of teams which had exactly 2 wins in the second stage was 2.

117. The value of the total of number of matches won, in the first stage, by teams A, B, C and D together could not be more than

Directions for questions 118 to 121 : Answer the questions on the basis of the information given below.

A group has to be selected from seven persons containing two women (Rehana and Kavya) and five men (Rohit, Rahul, Kamal, Nusarat and John). Rohit would not like to be in the group if Rahul is selected. Rahul and John want to be selected together in the group. Kavya would like to be in the group only if Kamal is also there. Kamal, if selected, would not like Nusarat in the group. Rohit would like to be in the group only if Nusarat is also there. Kamal insists that Rehana must be selected in case he is there in the group.

118. Which of the following is an acceptable combination of a group of three?

(a) Rohit, John, Kavya

(b) Rahul, Kamal, Nusarat

(c) Rohit, Nusarat, Rahul

(d) Rohit, Nusarat, Rehana

119. Which of the following is an acceptable combination of a group of four?

(a) Rohit, Nusarat, Rehana, John

(b) Rahul, John, Kavya, Kamal

(c) Rahul, John, Rehana, Kamal

(d) Rehana, Kamal, Rohit, Nusarat

120. Which of the following statements is true?

(a) Kavya and Rohit both can be selected in a group of four.

(b) A group of four can have both the women.

(c) A group of four can have four men.

(d) None of the above

121. If a group of five members has to be selected, then in how many ways is it possible such that Kamal is definitely a member of the group?

(a) 1 (b) 0

(c) 2 (d) 3

2016

Directions for questions 122 to 125: Answer the questions on the basis of the information given below.

Ina, Mina and Dika had some money with which they decided to buy the shares of two companies – Bindaas and Jhakkas. The amount with Mina was 1/3rd of the total money available with the three of them. Ina and Mina spent equal amounts of money in buying Bindaas shares. The amount spent by Mina on buying Jhakkas shares was twice that of Dika. The amount spent by Ina on buying Jhakkas shares was 50% more than the amount spent on Jhakkas shares by Mina and Dika together. The amount spent by Dika on Bindaas shares was 1/9th of the total initial money with the three of them. The amount spent on Jhakkas shares by the three of them together was 1/3rd of the total initial money with them. Mina and Dika had equal amounts of money left with them after making the purchases. The amount spent by Dika in buying Jhakkas shares was equal to the amount left with Mina after making the purchases. The money left with Ina after making the purchases was 1/15th of the total initial money with the three of them. The amount spent on Jhakkas shares by Mina and Dika together was Rs. 2,00,000 more than the money that was left with the two of them after making the purchases.

122. If the price of a Bindaas share was Rs. 5,000 then find the number of Bindaas shares bought by the three of them together.

(a) 420 (b) 440

(c) 460 (d) 480

123. What was the money available with Ina in the beginning?

(a) Rs. 21,00,000 (b) Rs. 30,00,000

(c) Rs. 24,00,000 (d) Rs. 18,00,000

124. Which of the following statement(s) is/are true?

I. The money spent on purchases as a percentage of the money available with an individual in the beginning was the highest for Dika among the three.

II. The three of them were left with a sum of Rs. 7,00,000 after making the purchases.

(a) Only I (b) Only II

(c) Both I and II (d) Neither I nor II

125. What was the total amount of money (in Rs.) with the three at the beginning?

(a) 45,00,000

(b) 40,00,000

(c) 42,50,000

(d) None of these

2017

Question Numbers: (126 to 129): Funky Pizzaria was required to supply pizzas to three different parties. The total number of pizzas it had to deliver was 800, 70% of which were to be delivered to Party 3 and the rest equally divided between Party 1 and Party 2.

Pizzas could be of Thin Crust (T) or Deep Dish (D) variety and come in either Normal Cheese (NC) or Extra Cheese (EC) versions. Hence, There are four types of pizzas: T-NC, T-EC, D-NC and D-EC. Partial information about proportions of T and NC pizzas ordered by the three parties is given below:

	Thin Crust (T)	Normal Cheese (NC)
Party 1	0.6	
Party 2	0.55	0.3
Party 3		0.65
Total	0.375	0.52

126. How many Thin Crust pizzas were to be delivered to Party 3?

(a) 398 (b) 162

(c) 196 (d) 364

127. How many Normal Cheese pizzas were required to be delivered to Party 1?

(a) 104 (b) 84

(c) 16 (d) 196

128. For Party 2, if 50% of the Normal Cheese pizzas were of Thin Crust variety, what was the difference between the numbers of T-EC and D-EC pizzas to be delivered to Party 2?

(a) 18 (b) 12

(c) 30 (d) 24

129. Suppose that a T-NC pizza cost as much as a D-NC pizza, but 3/5th of the price of a D-EC pizza. A D-EC pizza costs Rs.50 more than a T-EC pizza, and the latter costs Rs.500.

If 25% of the Normal Cheese pizzas delivered to Party 1 were of Deep Dish variety, what was the total bill for Party 1?

(a) Rs. 59480 (b) Rs. 59840

(c) RS. 42520 (d) Rs. 45240

Question Numbers : (130 to 133) : There were seven elective courses - E1 to E7 - running in a specific term in a college. Each of the 300 students enrolled had chosen just one elective from among these seven. However, before the start of the term, E7 was withdrawn as the instructor concerned had left the college. The students who had opted for E7 were allowed to join any of the remaining electives, Also, the students who had chosen other electives were given one chance to change their choice. The table below captures the movement of the students from one elective to another during this process. Movement from one elective to the same elective simply means no movement. Some numbers in the table got accidentally erased; however, it is known that these were either 0 or 1.

		To Elective					
		E1	**E2**	**E3**	**E4**	**E5**	**E6**
From Elective	**E1**	9	5	10	1	4	2
	E2		34	8		2	2
	E3	2	6	25			2
	E4		3	2	14		4
	E5		5			30	
	E6		7	3		2	9
	E7	4	16	30	5	5	41

Further, the following are known:

1. Before the change process there were 6 more students in E1 than in E4, but after the reshuffle, the number of students in E4 was 3 more than that in E1.
2. The number of students in E2 increased by 30 after the change process.
3. Before the change process, E4 had 2 more students than E6, while E2 had 10 more students than E3.

130. How many elective courses among E1 to E6 had a decrease in their enrollments after the change process?

(a) 4 (b) 1

(c) 2 (d) 3

131. After the change process, which of the following is the correct sequence of number of students in the six electives E1 to E6?

(a) 19, 76, 79, 21, 45, 60

(b) 19, 76, 78, 22, 45, 60

(c) 18, 76, 79, 23, 43, 61

(d) 18, 76, 79, 21, 45, 61

132. After the change process, which course among E1 to E6 had the largest change in its enrollment as a percentage of its original enrollment?

(a) E1 (b) E2

(c) E3 (d) E6

133. Later, the college imposed a condition that if after the change of electives, the enrollment in any elective (other than E7) dropped to less than 20 students, all the students who had left that course will be required to reenroll for that elective.

Which of the following is a correct sequence of electives in decreasing order of their final enrollments?

(a) E2, E3, E6, E5, E1, E4

(b) E3, E2, E6, E5, E4, E1

(c) E2, E5, E3, E1, E4, E6

(d) E2, E3, E5, E6, E1, E3

Question Numbers (134 to 137) : *An old woman had the following assets:*

(a) Rs.70 lakh in bank deposits

(b) 1 house worth Rs.50 lakh

(c) 3 flats, each worth Rs.30 lakh

(d) Certain number of gold coins, each worth Rs.1 lakh

She wanted to distribute her assets among her three children; Neeta, Seeta and Geeta.

The house, any of the flats or any of the coins were not to be split. That is, the house went entirely to one child; a flat went to one child and similarly, a gold coin went to one child.

134. Among the three, Neeta received the least amount in bank deposits, while Geeta received the highest. The value of the assets was distributed equally among the children, as were the gold coins.

How much did Seeta receive in bank deposits (in lakhs of rupees)?

(a) 30 (b) 40

(c) 20 (d) 10

135. Among the three, Neeta received the least amount in bank deposits, while Geeta received the highest. The value of the assets was distributed equally among the children, as were the gold coins.

How many flats did Neeta receive?

136. The value of the assets distributed among Neeta, Seeta and Geeta was in the ratio of 1 : 2 : 3, while the gold coins were distributed among them in the ratio of 2 : 3 : 4. One child got all three flats and she did not get the house. One child, other than Geeta, got Rs.30 lakh in bank deposits.

How many gold coins did the old woman have?

(a) 72 (b) 90

(c) 180 (d) 216

137. The value of the assets distributed among Neeta, Seeta and Geeta was in the ratio of 1 : 2 : 3, while the gold coins were distributed among them in the ratio of 2 : 3 : 4. One child got all three flats and she did not get the house. One child, other than Geeta, got Rs.30 lakh in bank deposits.

How much did Geeta get in bank deposits (in lakhs of rupees)?

2018 Slot 1

Question Numbers (138 to 141) :

Twenty four people are part of three committees which are to look at research, teaching, and administration respectively. No two committees have any member in common. No two committees are of the same size. Each committee has three types of people: bureaucrats, educationalists, and politicians, with at least one from each of the three types in each committee. The following facts are also known about the committees:

1. The numbers of bureaucrats in the research and teaching committees are equal, while the number of bureaucrats in the research committee is 75% of the number of bureaucrats in the administration committee.
2. The number of educationalists in the teaching committee is less than the number of educationalists in the research committee. The number of educationalists in the research committee is the average of the numbers of educationalists in the other two committees.
3. 60% of the politicians are in the administration committee, and 20% are in the teaching committee.

138. Based on the given information, which of the following statements MUST be FALSE?

(a) The size of the research committee is less than the size of the administration committee

(b) In the teaching committee the number of educationalists is equal to the number of politicians

(c) In the administration committee the number of bureaucrats is equal to the number of educationalists

(d) The size of the research committee is less than the size of the teaching committee

139. What is the number of bureaucrats in the administration committee?

140. What is the number of educationalists in the research committee?

141. Which of the following CANNOT be determined uniquely based on the given information?

(a) The total number of educationalists in the three committees

(b) The size of the research committee

(c) The total number of bureaucrats in the three committees

(d) The size of the teaching committee

142. What best can be said about the number of satellites serving C?

(a) Cannot be more than 800

(b) Must be at least 100

(c) Must be between 400 and 800

(d) Must be between 450 and 725

143. What is the minimum possible number of satellites serving B exclusively?

(a) 100 (b) 500

(c) 200 (d) 250

144. If at least 100 of the 1600 satellites were serving O, what can be said about the number of satellites serving S?

(a) At least 475

(b) At most 475

(c) No conclusion is possible based on the given information

(d) Exactly 475

145. If the number of satellites serving at least two among B, C, and S is 1200, which of the following MUST be FALSE?

(a) The number of satellites serving B is more than 1000

(b) All 1600 satellites serve B or C or S

(c) The number of satellites serving B exclusively is exactly 250

(d) The number of satellites serving C cannot be uniquely determined

2018 Slot 2

Question Numbers: (146 to 149):

An agency entrusted to accredit colleges looks at four parameters: faculty quality (F), reputation (R), placement quality (P), and infrastructure (I). The four parameters are used to arrive at an overall score, which the agency uses to give an accreditation to the colleges. In each parameter, there are five possible letter grades given, each carrying certain points: A (50 points), B (40 points), C (30 points), D (20 points), and F (0 points). The overall score for a college is the weighted sum of the points scored in the four parameters. The weights of the parameters are 0.1, 0.2, 0.3 and 0.4 in some order, but the order is not disclosed. Accreditation is awarded based on the following scheme:

Range	Accreditation
Overall score ≥ 45	AAA
$35 \leq$ Overall score < 45	BAA
$25 \leq$ Overall score < 35	BBA
$15 \leq$ Overall score < 25	BBB
Overall score < 15	Junk

Eight colleges apply for accreditation, and receive the following grades in the four parameters (F, R, P, and I):

	F	R	P	I
A-one	A	A	A	B
Best Ed	B	C	D	D
Cosmopolitan	B	D	D	C
Dominance	D	D	B	C
Education Aid	A	A	B	A
Fancy	A	A	B	B
Global	C	F	D	D
High Q	C	D	D	B

It is further known that in terms of overall scores:

1. High Q is better than Best Ed;
2. Best Ed is better than Cosmopolitan; and
3. Education Aid is better than A-one.

146. What is the weight of the faculty quality parameter?

(a) 0.2 (b) 0.1

(c) 0.4 (d) 0.3

147. How many colleges receive the accreditation of AAA?

148. What is the highest overall score among the eight colleges?

149. How many colleges have overall scores between 31 and 40, both inclusive?

(a) 3 (b) 0

(c) 1 (d) 2

Question Numbers: (150 to 153):

The base exchange rate of a currency X with respect to a currency Y is the number of units of currency Y which is equivalent in value to one unit of currency X. Currency exchange outlets buy currency at buying exchange rates that are lower than base exchange rates, and sell currency at selling exchange rates that are higher than base exchange rates.

A currency exchange outlet uses the local currency L to buy and sell three international currencies A, B, and C,

but does not exchange one international currency directly with another. The base exchange rates of A, B and C with respect to L are in the ratio 100:120:1. The buying exchange rates of each of A, B, and C with respect to L are 5% below the corresponding base exchange rates, and their selling exchange rates are 10% above their corresponding base exchange rates.

The following facts are known about the outlet on a particular day:

1. The amount of L used by the outlet to buy C equals the amount of L it received by selling C.
2. The amounts of L used by the outlet to buy A and B are in the ratio 5:3.
3. The amounts of L the outlet received from the sales of A and B are in the ratio 5:9.
4. The outlet received 88000 units of L by selling A during the day.
5. The outlet started the day with some amount of L, 2500 units of A, 4800 units of B, and 48000 units of C.
6. The outlet ended the day with some amount of L, 3300 units of A, 4800 units of B, and 51000 units of C.

150. How many units of currency A did the outlet buy on that day?

151. How many units of currency C did the outlet sell on that day?

(a) 6000 (b) 22000

(c) 3000 (d) 19000

152. What was the base exchange rate of currency B with respect to currency L on that day?

153. What was the buying exchange rate of currency C with respect to currency L on that day?

(a) 1.90 (b) 0.95

(c) 1.10 (d) 2.20

CALCULATION BASED DI

1990

Directions for Questions 1 to 3 : *Answer the questions on the basis of the information given below.*

Ghosh Babu has a certain amount of property consisting of cash, gold coins and silver bars. The cost of a gold coin is Rs. 4000 and the cost of a silver bar is Rs. 1000. Ghosh Babu distributed his property among his daughters equally. He gave to his eldest daughter gold coins worth 20% of the total property and Rs. 25000 in cash. The second daughter was given silver bars worth 20% of the remaining property and Rs. 50000 cash. He then gave each of the third and fourth daughters equal number of gold coins and silver bars both together accounting each for 20% of the property remaining after the previous distribution and Rs. 25000 more than what the second daughter had received in cash.

1. The amount of property in gold and silver possessed by Ghosh Babu is

(a) 2,25,000 (b) 2,75,000

(c) Rs. 4,25,000 (d) None of these

2. Total property of Ghosh Babu (in Rs.lakh) is

(a) 5.0 (b) 7.5

(c) 10.0 (d) 12.5.

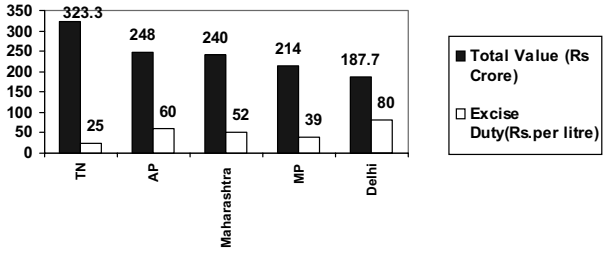
3. If Ghosh Babu had equal number of gold and silver bars, the number of silver bars he has is

(a) 90 (b) 60

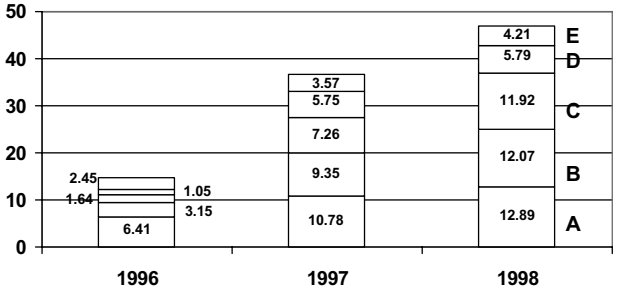
(c) 75 (d) 55

Directions for Questions 4 to 7: *Answer the questions on the basis of the information given below.*

The following graph shows the value of liquor supplied by the 5 states in 1996 and the excise duty rates in each state.



Amount of liquor supplied in Tamil Nadu Distilleries A, B, C, D, E (from bottom to top) in lakh litres.



4. What is the lowest percentage difference in the excise duty rates for any two states?

(a) 12 (b) 15

(c) 20 (d) Cannot be determined.

5. Which of the five states manufactured liquor at the lowest cost?

(a) Tamil Nadu

(b) Delhi

(c) The states which has the lowest value for (wholesale price-Excise duty) per litre

(d) Cannot be determined.

6. If Excise duty is levied before the goods leave the factory (on the value of the liquor), then which of the following choices shows distilleries in ascending order of the excise duty paid by them for the year 1996? (Assume the total liquor in TN is supplied by only these 5 distilleries).

(a) ECABD (b) ADEBC

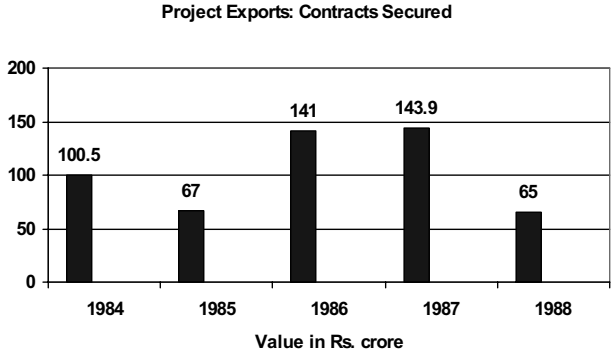
(c) DCEBA (d) Cannot be determined.

7. If the Tamil Nadu distillery, with the least average simple annual growth in amount of liquor supplied in the given period had shown the same rate of growth as the one which grew fastest, what would that company's supply have been in 1998, in lakh liters?

(a) 13 (b) 15.1 1

(c) 130 (d) Cannot be determined.

Directions for Questions 8 to 10: *Answer the questions on the basis of the information given below.*



8. What is the average value of the contract secured during the years shown in the diagram?

(a) Rs. 103.48 crore (b) Rs. 105 crore

(c) Rs. 100 crore (d) Rs.125.2 crore

9. Compared to the performance in 1985 (i.e. taking it as the base), what can you say about the performances in the years '84, '85, '86, '87, '88 respectively, in percentage terms?

(a) 150, 100, 211, 216, 97

(b) 100, 67, 141,144,65

(c) 150, 100, 200, 215, 100

(d) 120, 100, 220, 230, 68

10. Which is the year in which the highest percentage decline is seen in the value of contract secured compared to the preceding year?

(a) 1985 (b) 1988

(c) 1984 (d) 1986

Directions for Questions 11 to 16: *Answer the questions on the basis of the information given below.*

The table below shows the estimated cost (in Rs. Lakh) of a project of laying a railway line between two places.

	1988	1989	1990	1991
1. Surveying	41.5	7.5	2.2	0.5
2. Cement	-	95.0	80.0	75.0
3. Steel	-	70.0	45.0	60.0
4. Bricks	-	15.0	12.0	16.0
5. Other building material	-	25.0	18.0	21.0
6. Labour	2.1	25.0	20.0	18.0
7. Administration	7.5	15.0	15.0	14.0
8. Contingencies	1.0	15.0	4.2	5.0
Total	**52.1**	**267.5**	**196.4**	**209.5**

11. The total expenditure is required to be kept within Rs. 700 lakh by cutting the expenditure on administration equally in all the years. What will be the percentage cut for 1989?

(a) 22.6% (b) 32.6%

(c) 42.5% (d) 52.6%

12. If the length of line to be laid each year is in proportion to the estimated cost for material and labour, what fraction of the total length is proposed to be completed by the third year?

(a) 0.9 (b) 0.7

(c) 0.6 (d) 0.3

13. What is the approximate ratio of the total cost of materials for all the years to the total labour cost?

(a) 4 : 1 (b) 8 : 1

(c) 12:1 (d) 16 : 1

14. If the cost of materials rises by 5% each year from 1990 onwards, by how much will the estimated cost rise?

(a) Rs. 11.4 lakh

(b) Rs. 16.4 lakh

(c) Rs.21.4 lakh

(d) Rs.26.4 lakh

15. It is found at the end of 1990, that the entire amount estimated for the project has been spent. If for 1991, the actual amount spent was equal to that which was estimated, by what percent (approximately) has the actual expenditure exceeded the estimated expenditure?

(a) 39 (b) 29

(c) 19 (d) 9

16. After preparing the estimate, the provision for contingencies is felt inadequate and is therefore doubled. By what percent does the total estimate increase?

(a) 3.47 (b) 2.45

(c) 1.50 (d) 3.62

Directions for Questions 17 to 21: *Answer the questions on the basis of the information given below.*

The first table gives the number of saris (of all the eight colours) stocked in six regional showrooms. The second gives the number of saris (of all the eight colours) sold in these six regional showrooms. The third table gives the percentage of saris sold to saris stocked for each colour in each region. The fourth table gives the percentage of saris of a specific colour sold within that region. The fifth table gives the percentage of saris of a specific colour sold across all the regions.

Study the tables and for each of the following questions, choose the best alternative.

Table 1

Region	Blue	Green	Magenta	Brown	Orange	Red	Violet	Yellow	Total
1	267	585	244	318	132	173	195	83	1994
2	341	480	99	199	234	119	200	109	1781
3	279	496	107	126	100	82	172	106	1468
4	198	307	62	221	65	96	124	91	1164
5	194	338	120	113	82	60	125	124	1156
6	158	261	133	104	71	158	128	82	1095
Total	**1437**	**2454**	**765**	**1081**	**684**	**688**	**944**	**595**	**8658**

Table 2

Region	Blue	Green	Magenta	Brown	Orange	Red	Violet	Yellow	Total
1	122	164	71	165	40	84	97	45	788
2	124	200	37	78	67	47	73	50	676
3	21	57	7	24	9	14	20	11	163
4	79	85	22	164	18	46	43	54	511
5	29	36	22	17	9	18	19	16	166
6	1	3	2	2	1	3	2	4	18
Total	**376**	**545**	**161**	**450**	**144**	**212**	**254**	**180**	**2322**

Table 3

Region	Blue	Green	Magenta	Brown	Orange	Red	Violet	Yellow	All
1	46	28	29	52	30	49	50	54	40
2	36	42	37	39	29	39	37	46	38
3	8	11	7	19	9	17	12	10	11
4	40	28	35	74	28	48	35	59	44
5	15	11	18	15	11	30	15	13	14
6	1	1	2	2	1	2	2	5	2
All	**26**	**22**	**21**	**42**	**21**	**31**	**27**	**30**	

Table 4

Region	Blue	Green	Magenta	Brown	Orange	Red	Violet	Yellow	Total
1	15	21	9	22	4	11	12	6	100
2	18	30	5	12	10	7	11	7	100
3	13	35	4	15	6	9	12	7	100
4	15	17	4	32	4	9	8	11	100
5	17	22	13	10	5	11	11	10	100
6	6	14	11	11	6	17	11	22	100

Table 5

Region	Blue	Green	Magenta	Brown	Orange	Red	Violet	Yellow
1	32	30	44	37	28	40	38	25
2	33	37	23	17	47	22	29	28
3	6	10	4	5	6	7	8	6
4	21	16	14	36	13	22	17	30
5	8	7	14	4	6	8	7	9
6	0	1	1	0	1	1	1	2
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

17. Which region-colour combination accounts for the highest percentage of sales to stock?

(a) (1, Brown) (b) (2, Yellow)

(c) (4, Brown) (d) (5, Red)

18. Which colour is the most popular in region1?

(a) Blue (b) Brown

(c) Green (d) Violet

19. Which region sold the maximum percentage of magenta saris out of the total sales of magenta saris?

(a) 3 (b) 4

(c) 2 (d) 1

20. Out of its total sales, which region sold the minimum percentage of green saris?

(a) 1 (b) 6

(c) 4 (d) 2

21. In which region is the maximum percentage of blue saris sold?

(a) 2 (b) 3

(c) 1 (d) 4

Directions for Questions 22 to 25: *Answer the questions on the basis of the information given below.*

The table below gives the achievements of Agricultural Development Programmes from 1983 – 84 to 1988 – 89. Study the following table and for each of the following questions, choose the best alternative.

Programme	83 – 84	84 - 85	85 - 86	86 - 87	87 - 88	88 – 89

Irrigation (Cumulative in Million Hectares)

Major & Medium	22.05	22.70	23.20	24.00	24.60	25.32
Minor	28.60	32.77	32.77	34.20	34.00	35.14

High yielding varieties (Million Hectares)

1. Paddy	16.90	18.20	19.70	18.70	21.70	22.80
2. Wheat	15.90	16.10	16.80	17.80	19.40	19.10
3. Jowar	3.10	3.50	3.90	4.40	5.30	5.10
4. Bajra	2.90	3.60	4.60	4.70	5.40	5.20
5. Maize	1.40	1.60	1.60	1.70	1.90	2.00

Consumption of Chemical fertilizers (Million tons)

1. Nitrogen	3.42	3.68	4.07	4.22	5.20	5.49
2. Phosphate	1.11	1.21	1.32	1.44	1.73	1.89
3. Potash	0.59	0.62	0.67	0.73	0.78	0.84

Gross Cropped area (Million hectares)

	174.8	173.1	177.00	172.6	180.4	187.8

22. The consumption of chemical fertilizer per hectare of gross cropped area is lowest for the year

(a) 1984 – 85 (b) 1985 – 86

(c) 1986 – 87 (d) 1987 – 88

23. In which year does the area cropped under high yielding varieties show a decline for the maximum number of crops?

(a) 1988 – 89 (b) 1985 – 86

(c) 1986 – 87 (d) None of these

24. How much area, in million hectares, was brought under irrigation during the year 1986-87?

(a) 58.20 (b) 1.43

(c) 0.80 (d) 2.23

25. It is possible that a part of the minor irrigated area is brought under major and medium areas. In which year has this definitely happened?

(a) 1984 – 85 (b) 1985 – 86

(c) 1986 – 87 (d) 1987 – 88

1991

Directions for Questions 26 to 30: *Answer the questions on the basis of the information given below.*

The following table gives the national income and the population of a country for the years 1984 – 85 to 1989 –90. For each of the following questions choose the best alternative:

Year	National Income (in Rs. Crore)	Population (in crore)
1984-85	229,225	74.0
1985-86	261,174	75.0
1986-87	291,556	77.0
1987-88	329,934	78.5
1988-89	388,539	80.0
1989-90	433,500	81.5

26. The increase in the per capita income compared to the previous year is lowest for the year :

(a) 1985-86 (b) 1986-87

(c) 1987-88 (d) 1989-90

27. The per capita income is highest for the year :

(a) 1984-85 (b) 1985-86

(c) 1987-88 (d) 1989-90

28. The difference between the percentage increase in per capita income and the percentage increase in the population compared to the previous year is highest for the year:

(a) 1985-86 (b) 1986-87

(c) 1987-88 (d) 1988-89

29. The rate of increase in population was lowest in the year:

(a) 1985-86 (b) 1987-88

(c) 1989-90 (d) None of these

30. Increase in the per capita income compared to the previous year among the years given below was highest for the year:

(a) 1985-86 (b) 1986-87

(c) 1987-88 (d) 1989-90

Directions for Questions 31 to 35: *Answer the questions on the basis of the information given below.*

Ghosh Babu deposited a certain sum of money in a bank in 1986. The bank calculated interest on the principal at 10 percent simple interest, and credited it to the account once a year. After the 1st year, Ghosh Babu withdrew the entire interest and 20% of the initial amount. After the 2nd year, he withdrew the interest and 50% of the remaining amount. After the 3rd year, he withdrew the interest and 50% of the remaining amount. Finally after the 4th year, Ghosh Babu closed the account and collected the entire balance of Rs. 11,000.

31. The initial amount in rupees, deposited by Ghosh Babu was:

(a) 25,000 (b) 75,000

(c) 50,000 (d) None of these

32. The year, at the end of which, Ghosh Babu withdrew the smallest amount was:

(a) First (b) Second

(c) Third (d) Fourth

33. The year, at the end of which, Ghosh Babu collected the maximum interest was:

(a) First (b) Second

(c) Third (d) Fourth

34. The year, at the end of which, Ghosh Babu withdrew the maximum amount was:

(a) First (b) Second

(c) Third (d) Fourth

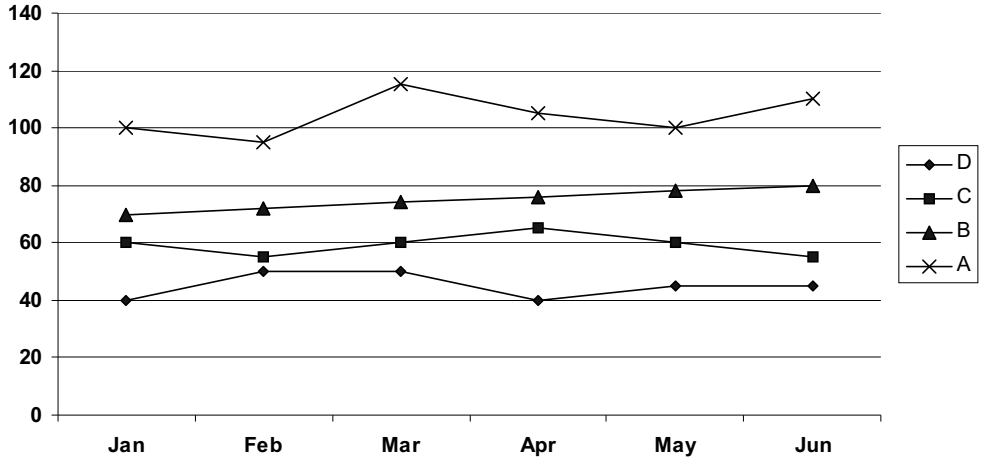
35. The total interest, in rupees, collected by Ghosh Babu was:

(a) 12,000 (b) 20,000

(c) 4,000 (d) 11,000

Directions for Questions 36 to 40 : *Answer the questions on the basis of the information given below.*

The graph below shows the end of the month market values of 4 shares for the period from January to June.



36. Which share showed the greatest percentage increase in market value in any month during the entire period?

(a) A (b) B

(c) C (d) D

37. In which month was the greatest absolute change in market value for any share recorded?

(a) March

(b) April

(c) May

(d) June

38. In which month was the greatest percentage increase in market value for any share recorded?

(a) February (b) March

(c) April (d) May

39. An individual wishes to sell 1 share of C and 1 share of D to buy 1 share of A at the end of a month. At which month-end would the individual's loss from this decision, due to share value changes, be the most?

(a) February (b) March

(c) April (d) June

40. An individual decides to sell 1 share of C and 1 share of D to buy 1 share of A at the end of the month. What can be the individual's greatest gain from this decision, due to share value changes?

(a) 5 (b) 10

(c) 15 (d) none

Directions for Questions 41 to 45: *Answer the questions on the basis of the information given below.*

Prakash has to decide whether or not to test a batch of 1000 widgets before sending them to the buyer. In case he decides to test, he has two options: (a) Use test I ; (b) Use test II. Test I cost Rs. 2 per widget. However, the test is not perfect. It sends 20% of the bad ones to the buyer as good. Test II costs Rs. 3 per widget. It brings out all the bad ones. A defective widget identified before sending can be corrected at a cost of Rs. 25 per widget. All defective widgets are identified at the buyer's end and penalty of Rs. 50 per defective widget has to be paid by Prakash.

41. Prakash should not test if the number of bad widgets in the lot is:

(a) less than 100 (b) more than 200

(c) between 120 & 190 (d) Cannot be found out.

42. If there are 120 defective widgets in the lot, Prakash:

(a) should either use Test I or not test.

(b) should either use Test II or not test.

(c) should use Test I or Test II.

(d) should use Test I only.

43. If the number of defective widgets in the lot is between 200 and 400, Prakash:

(a) may use Test I or Test II

(b) should use Test I only.

(c) should use Test II only

(d) cannot decide.

44. If Prakash is told that the lot has 160 defective widgets, he should:

(a) use Test I only

(b) use Test II only.

(c) do no testing.

(d) either use Test I or do not test.

45. If there are 200 defective widgets in the lot, Prakash:

(a) may use either Test I or Test II

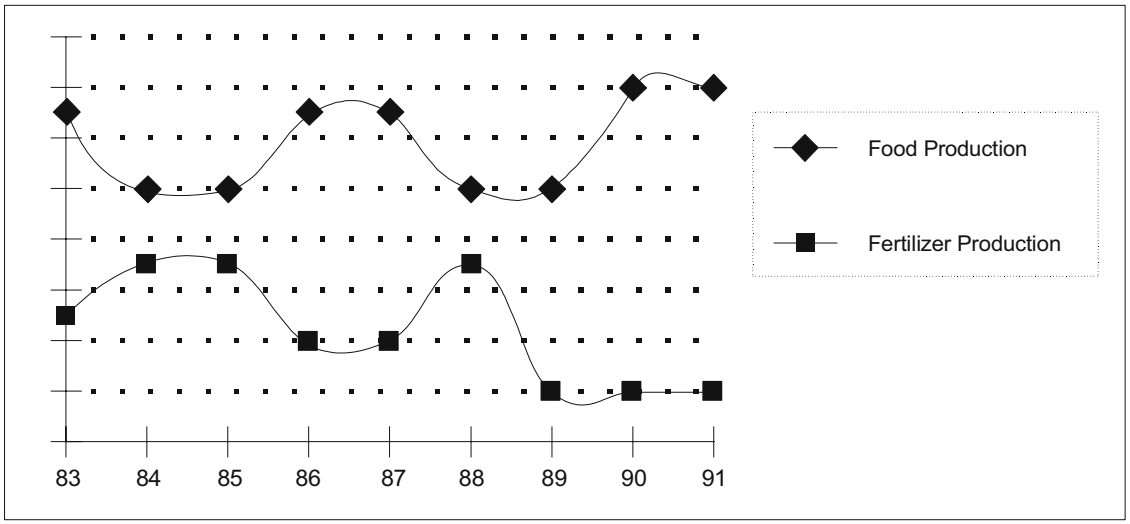
(b) should use Test I or not use any test

(c) should use Test II or not use any test.

(d) cannot decide.

Directions for Questions 46 to 50: *Answer the questions on the basis of the information given below.*

In the following graph the x – axis denotes the years from 1983 to 1991.



46. The sum of food and fertilizer production has shown a constant value for how many years?

(a) None of the years

(b) 2

(c) 4

(d) 5

47. If in 1988, the sum of the food and fertilizer production was 170 million tonnes, the value of food production must have been (approximately, in million tonnes) …

(a) 90

(b) 70

(c) 100

(d) Insufficient data

48. From its apparent behaviour, the food production in year 1992 can be expected to …

(a) go up

(b) go down

(c) remain the same as previous year.

(d) nothing can be said.

49. Going according to previous trends, one can say that the Fertilizer Production has shown an anomalous behaviour in which year?

(a) 1985

(b) 1984

(c) 1991

(d) 1989

50. A scholar observed that if the production of fertilizers in 1989 had been the same as that in 1988, then the total fertilizer production for all the given years would have been 450 million tonnes. Using this information, and knowing that the food production has been plotted on the same scale, one may say that the food production in 1983 was (approximately, in million tonnes) …

(a) 80

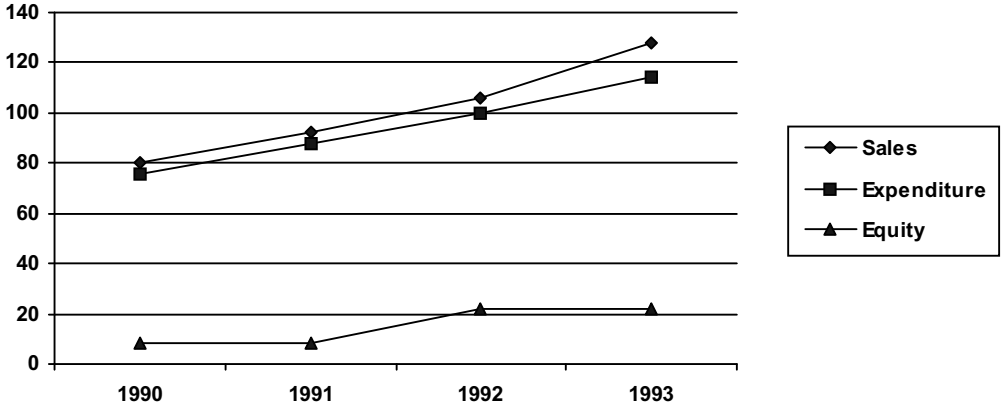
(b) 130

(c) 105

(d) Cannot be determined

1993

Directions for Questions 51 to 54: *Answer the questions on the basis of the information given below.*



Profit is defined as Sales - Expenditure

51. In which year is the profit per rupee of equity the highest?
(a) 1991 (b) 1992
(c) 1993 (d) 1990 and 1991

52. The simple annual growth rate in sales was the highest between the years?
(a) 1990 – 91 (b) 1991 – 92
(c) 1992 – 93 (d) 1990 – 92

53. In which year is the sales per rupee of expenditure the lowest?
(a) 1990 (b) 1991
(c) 1992 (d) 1993

54. In which year is sales per rupee of equity the highest?
(a) 1990 (b) 1991
(c) 1992 (d) 1994

Directions for Questions 55 to 58: *Answer the questions on the basis of the information given below.*

Ghosh Babu has recently acquired four companies namely Arc – Net Technologies (ANT), Babu Anta Transport (BAT), Charles Anter Tailor (CAT) and Daud Akbar Transistors (DAT). When the results of the companies for the year 1992 – 93 were placed before him. He found a few interesting things about them. While the profits of CAT and DAT were the same, the sales of CAT were the same as those of BAT . Profits of ANT were 10% of its sales, where as the profits of BAT were 20% of its sales. While the total expenses of CAT were 5 times its profits, sales of DAT were 3 times its profits. The total expenses of CAT were Rs.10,00,000, the total expenses of ANT were 10% less than those of CAT.

Profits are defined as the difference between sales and total expenses.

55. Which company had the lowest sales?
(a) ANT (b) BAT
(c) CAT (d) DAT

56. Which company had the highest total expenses?
(a) ANT (b) BAT
(c) CAT (d) DAT

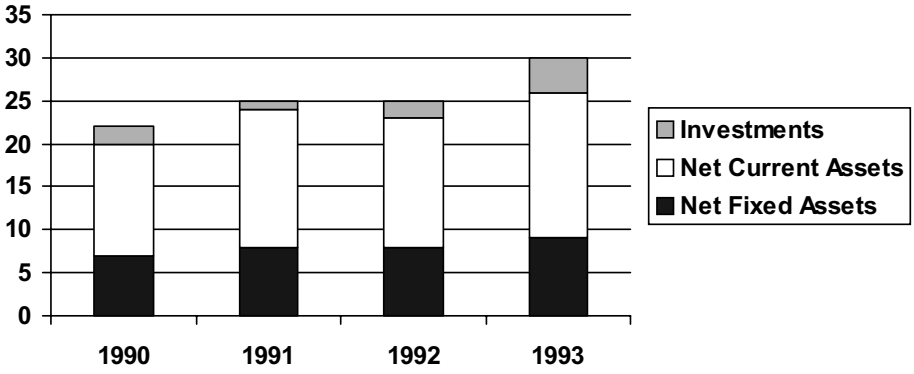
57. Which company had the lowest profits?
(a) ANT (b) BAT
(c) CAT (d) DAT

58. Which company had the highest profits.
(a) ANT (b) BAT
(c) CAT (d) DAT

Directions for Questions 59 to 62: *Answer the questions on the basis of the information given below.*

Study the graph below and answer the questions.

Total Assets are defined as Net Fixed Assets + Net Current Assets + Investments



59. What is the approximate simple annual growth rate of Total Assets 1990 and 1993?

(a) 36% (b) 12%

(c) 9% (d) 27%

60. In any two consecutive years, the growth rate is lowest for

(a) Net Fixed Assets.

(b) Net Current Assets.

(c) Investments.

(d) Total Assets.

61. Between 1991 and 1992, the highest growth rate was seen for

(a) Net Fixed Assets

(b) Net Current Assets.

(c) Investments

(d) Total Assets.

62. The only item which has not shown a negative growth in every year between 1990 and 1993 is

(a) Net Fixed Assets. (b) Net Current Assets.

(c) Investments. (d) Total Assets.

Directions for Questions 63 to 67: *Answer the questions on the basis of the information given below.*

A professor keeps data on students tabulated by performance and sex of the student . The data is kept on a computer disk, but unfortunately some of it is lost because of a virus. Only the following could be recovered :

	Performance			Total
	Average	Good	Excellent	
Male			10	
Female				32
Total		30		

Panic buttons were pressed but to no avail. An expert committee was formed, which decided that the following facts were self evident:

Half the students were either excellent or good.

40% of the students were females.

One third of the male students were average.

63. How many students were both female and excellent?

(a) 0 (b) 8

(c) 16 (d) 32

64. How many students were both male and good?

(a) 10 (b) 16

(c) 22 (d) 48

65. Among average students, what was the ratio of male to female?

(a) 1 : 2 (b) 2 : 1

(c) 3 : 2 (d) 2 : 3

66. What proportion of female students were good?

(a) 0 (b) 0.25

(c) 0.5 (d) 1.0

67. What proportion of good students were male?

(a) 0 (b) 0.73

(c) 0.4 (d) 1.0

Directions for Questions 68 to 71: *Answer the questions on the basis of the information given below.*

Given below are the forecasts of the World and Asian energy demand for the years 1990, 2000 and 2010. The demand is given in million barrels per day, crude oil equivalent.

	1990		2000		2010	
	World	Asia	World	Asia	World	Asia
Petroleum	50.0	4.0	70.0	10.0	80.0	15.0
Natural Gas	30.0	0.5	40.0	2.5	50.0	5.0
Solid Fuels	50.0	4.0	60.0	5.0	75.0	10.0
Nuclear	10.0	0.5	20.0	1.0	25.0	1.3
Hydropower	10.0	1.0	10.0	1.5	20.0	2.0
Total	150.00	10.0	200.0	20.0	250.0	33.3

68. Over 1990 – 2010, which two fuels meet more than 60 percent of the total energy demand of both World and Asia?

(a) Petroleum & Natural Gas

(b) Petroleum & Solid Fuels

(c) Natural Gas & Solid Fuels

(d) None of the above

69. Which fuel's proportion in the total energy demand increases over the decade 1990–2000 and decreases over the decade 2000 – 2010 for both the World and Asia?

(a) Petroleum (b) Natural Gas

(c) Solid Fuels (d) Nuclear

70. Which is the fuel whose proportion in the total energy demand will decrease continuously over the period 1990 – 2010, in Asia?

(a) Natural Gas (b) Solid Fuels

(c) Nuclear (d) Hydropower

71. Which is the fuel whose proportion to the total energy demand of the world will remain constant over the period 1990 – 2010 but whose proportion will increase in the total energy demand in Asia?

(a) Solid Fuels (b) Nuclear

(c) Hydropower (d) Natural Gas

1994

Directions for Questions 72 to 74: *Answer the questions on the basis of the information given below.*

Alphonso, on his death bed, keeps half his property for his wife and divide the rest equally among his three sons Ben, Carl and Dave. Some years later Ben dies leaving half his property to his widow and half to his brothers Carl and Dave together, shared equally. When Carl makes his will he keeps half his property for his widow and the rest he bequeaths to his younger brother Dave. When Dave dies some years later, he keeps half his property for his widow and the remaining for his mother. The mother now has Rs. 1,575,000.

72. What was the worth of the total property?

(a) Rs. 30 lakh (b) Rs. 8 lakh

(c) Rs. 18 lakh (d) Rs.24 lakh

73. What was Carl's original share?

(a) Rs. 4 lakh (b) Rs. 12 lakh

(c) Rs. 6 lakh (d) Rs. 5 lakh

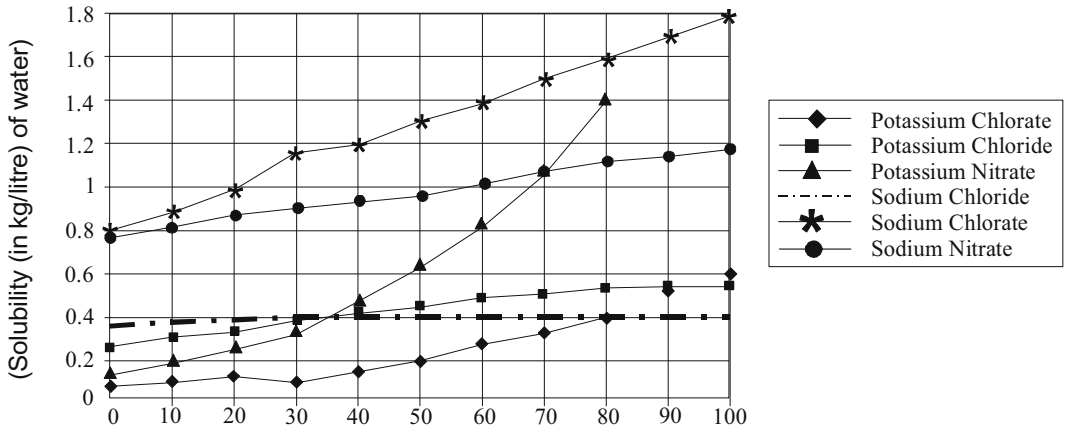
74. What was the ratio of the property owned by the widows of the three sons, in the end?

(a) 7 : 9 : 13 (b) 8 : 10 : 15

(c) 5 : 7 : 9 (d) 9 : 12 : 13

Directions for Questions 75 to 79: *Answer the questions on the basis of the information given below.*

Solubility-Temperature relationships for various salts.



75. Which of the following salts has greatest solubility?

(a) Potassium Chlorate at 80^0 C.

(b) Potassium Chloride at 35^0 C.

(c) Potassium Nitrate at 39^0 C.

(d) Sodium Chloride at 85^0 C.

76. Approximately, how many kg of Potassium Nitrate can be dissolved in 10 litres of water at 30^0C?

(a) 0.04 (b) 0.4

(c) 4 (d) 0.35

77. By what percentage is the solubility of Potassium Chlorate in water increased as the water is heated from 30^0C to 80^0C?.

(a) 100 (b) 200

(c) 250 (d) 300

78. If 1 mole of Potassium Chloride weighs 0.07456 kg, approximately. How many moles of Potassium Chloride can be dissolved in 100 litres of water at 36^0C?

(a) 700

(b) 650

(c) 480

(d) 540

79. Which of the salts has greater change in solubility in kg / litre of water between 15°C and 25°C?

(a) Potassium Chlorate

(b) Potassium Nitrate

(c) Sodium Chlorate

(d) Sodium Nitrate

Directions for Questions 80 to 83: *Answer the questions on the basis of the information given below.*

In 1984 – 85 value of exports of manufactured articles exceeds over the value of exports of raw materials by 100%.

In 1985 – 86 the ratio of percentage of exports of raw material to that of exports of manufactured articles is 3 : 4.

Exports of food in 1985 – 86 exceeds the 1984 – 85 figures by Rs. 1006 crore.

Item	1984-85	1985-86
Food		23%
Manufactured Articles		
Raw Material		
Total Value of Exports in Crore of Rs.	22400	25800

80. In 1984 – 85 what percentage of total values of exports accounts for items related to food

(a) 23% (b) 29.2%

(c) 32% (d) 22%

81. During 1984 – 85, how much more raw material than food was exported?

(a) Rs. 2580 crore

(b) Rs. 896 crore

(c) Rs. 1986 crore

(d) Rs. 1852 crore

82. Value of exports of raw materials during 1984 – 85 was how much percent less than that for 1985 – 86?

(a) 39

(b) 46.18

(c) 7

(d) 31.6

83. The change in value of exports of manufactured articles from 1984 – 85 to 1985 – 86 is

(a) 296 crore

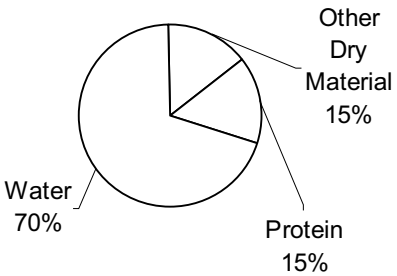
(b) 629 crore

(c) 2064 crore

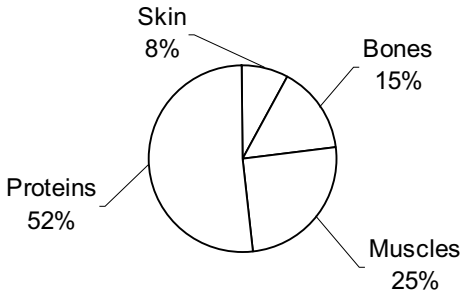
(d) 1792 crore

Directions for Questions 84 to 87: *Answer the questions on the basis of the information given below.*

Distribution of material in Ghosh Babu's body (as % of total body weight)



Occurance of Proteins in different organ's of Ghosh Babu's body



84. What fraction of Ghoshbabu's weight consists of muscular and skin protein?

(a) $\frac{1}{13}$ (b) $\frac{1}{30}$

(c) $\frac{1}{20}$ (d) Cannot be determined

85. Ratio of distribution of protein in muscle to the distribution of protein in skin is

(a) 3 : 1 (b) 3 : 10

(c) 1 : 3 (d) $3\frac{1}{2}:1$

86. What percent of Ghosh Babu's body weight is made up of skin

(a) 0.15 (b) 10

(c) 1.2 (d) Cannot be determined

87. In terms of total body weight, the portion of material other than water and protein is closest to

(a) $\frac{3}{20}$

(b) $\frac{1}{15}$

(c) $\frac{85}{100}$

(d) $\frac{1}{20}$

Directions for Questions 88 to 91: *Answer the questions on the basis of the information given below.*

The following table gives the sales details for text books and reference books at Primary/Secondary/Higher Secondary/ Graduate Levels.

Year	Primary	Secondary	Higher Secondary	Graduate Level
1975	42137	8820	65303	25343
1976	53568	10285	71602	27930
1977	58770	16437	73667	28687
1978	56872	15475	71668	30057
1979	66213	17500	78697	33682
1980	68718	20177	82175	36697

88. What is the growth rate of sales of books at primary school level from 1975 to 1980?

(a) 29%

(b) 51%

(c) 63%

(d) 163%

89. Which of the categories shows the lowest growth rate from 1975 to 1980?

(a) Primary (b) Secondary

(c) Higher secondary (d) Graduate Level

90. Which category had the highest growth rate in the period?

(a) Primary (b) Secondary

(c) Higher secondary (d) Graduate Level

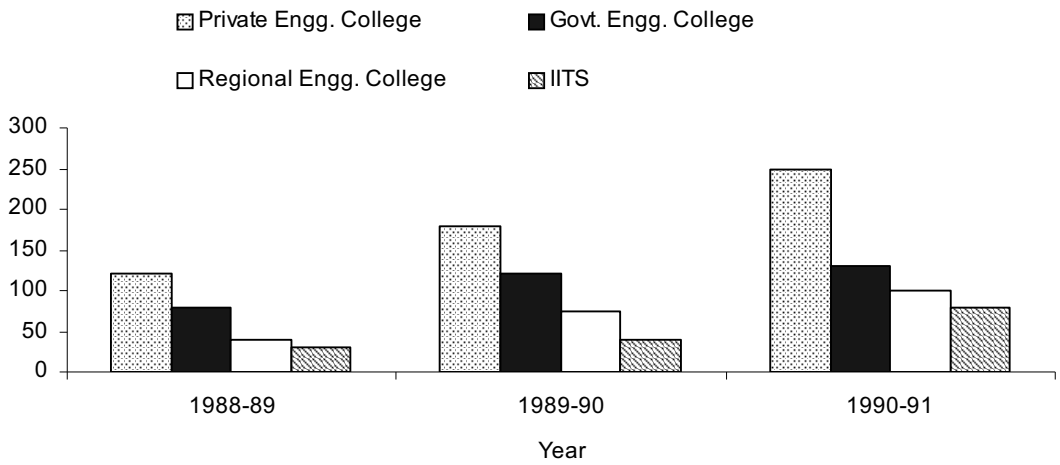
91. Which of the categories had either a consistent growth or a consistent decline in the period shown?

(a) Primary (b) Secondary

(c) Higher secondary (d) Graduate Level

Directions for Questions 92 to 95: *Answer the questions on the basis of the information given below.*

Number of Engineering Students (in hundreds) at institutions of different kinds



92. What was the total number of engineering students in 1989 – 90?

(a) 28500

(b) 4400

(c) 4200

(d) 42000

93. The growth rate in students of Govt. Engg. Colleges compared to that of Private Engg. Colleges between 1988 – 89 and 1989 – 90 is

(a) more (b) less

(c) equal (d) $\frac{3}{2}$

94. The total number of Engg. Students in 1991 – 92, assuming a 10% reduction in the number over the previous year, is

(a) 5700 (b) 57000

(c) 44800 (d) none of these

95. In 1990 – 91, what percent of Engg. Students were studying at IIT's?

(a) 16 (b) 15

(c) 14 (d) 12

Directions for Questions 96 to 99: *Answer the questions on the basis of the information given below.*

Bankatlal works x hours a day and rests y hours a day. This pattern continues for 1 week, with an exactly opposite pattern next week, and so on for four weeks. Every fifth week he has a different pattern. When he works longer than he rests, his wage per hour is twice what he earns per hour when he rests longer than he works.

The following are his daily working hours for the weeks numbered 1 to 13.

	1st week	5th week	9th week	13th week
Rest	2	3	4	-
Work	5	7	6	8

A week consists of six days and a month consists of 4 weeks.

96. If Bankatlal is paid Rs. 20 per working hour in the 1st week. What is his salary for the 1st month?

(a) Rs.1760 (b) Rs.1440

(c) Rs.1320 (d) Rs.1680

97. Referring to the data given in Q.187, Bankatlal's average monthly salary at the end of the first four months will be

(a) Rs.1780 (b) Rs.2040

(c) Rs.1830 (d) Rs.1680

98. The new manager Khushaldas stipulated that Rs.5 be deducted for every hour of rest and Rs. 25 be paid per hour starting 9th week, then what will be the change in Bankatlal's salary for the 3rd month? (Hourly deductions are constant for all weeks starting 9th week)

(a) Rs.540 (b) Rs.480

(c) Rs.240 (d) Rs.120

99. Using the data in the previous questions, what will be the total earning of Bankatlal at the end of sixteen weeks.

(a) Rs.7320 (b) Rs.7800

(c) Rs.8400 (d) Rs.9600

1995

Directions for Questions 100 to 104: *Answer the questions on the basis of the information given below.*

Ghosh Babu surveyed his companies and obtained the following data. Income tax is paid from profit before tax and the remaining amount is apportioned to dividend and retained earnings. The retained earnings were accumulated into reserves. The reserves at the beginning of 1991 were Rs.80 lakh.

Figure (in Rs. lakh)	1994	1993	1992	1991
Share capital	310	205	98	98
Sales	6435	4725	2620	3270
Profit before Tax	790	525	170	315
Dividends	110	60	30	30
Retained earnings	400	245	70	14

100. In which year was the tax per rupee of 'profit before tax' lowest?

(a) 1991 (b) 1992

(c) 1993 (d) 1994

101. In which year was the sales per rupee of share capital highest?

(a) 1991 (b) 1992

(c) 1993 (d) 1994

102. In which year was the profit before tax per rupee of sales highest?

(a) 1991 (b) 1992

(c) 1993 (d) 1994

103. In which year was the percentage addition to reserves over previous years reserves the highest?

(a) 1991 (b) 1992

(c) 1993 (d) 1994

104. Amount of the reserves at the end of 1994 is

(a) Rs.935 lakh

(b) Rs.915 lakh

(c) Rs.230 lakh

(d) None of these

Directions for Questions 105 to 109: *Answer the questions on the basis of the information given below.*

Market share in four metropolitan cities				
Period/ Product	Mumbai 1993-94	Kolkata 1993-94	Delhi 1993-94	Chennai 1993-94
HD	20-15	35-30	20-15	20-30
CO	20-25	30-15	15-10	20-15
BN	45-40	25-35	35-35	10-10
MT	15-20	10-20	10-10	50-45

105. The maximum percentage decrease in market share is

(a) 60% (b) 50%

(c) 53.3% (d) 20%

106. The city in which minimum number of products increased their market shares in 1993-94 is

(a) Mumbai

(b) Delhi

(c) Kolkata

(d) Chennai

107. The market shares of which products did not decrease between 1993-94 in any city?

(a) HD (b) CO

(c) BN (d) None of these

108. The number of products which had 100% market share in four metropolitan cities is

(a) 0 (b) 1

(c) 2 (d) 3

109. The number of products which doubled their market shares in one or more cities is

(a) 0 (b) 1

(c) 2 (d) 3

Directions for Questions 110 to 114: *Answer the questions on the basis of the information given below.*

110. The operating profit in 1991-92 increased over that in 1990-91 by

(a) 23% (b) 22%

(c) 25% (d) 24%

111. The interest burden in 1991-92 was higher than that in 1990-91 by

(a) 50% (b) Rs.25 lakh

(c) 90% (d) Rs.41 lakh

112. If on an average, 20% rate of interest was charged on borrowed funds, then the total borrowed funds used by this company in the given two years amounted to

(a) Rs.221 lakh (b) Rs.195 lakh

(c) Rs.368 lakh (d) Rs.515 lakh

113. The retained profit in 1991-92, as compared to that in 1990-91 was

(a) higher by 2.5% (b) higher by 1.5%

(c) lower by 2.5% (d) lower by 1.5%

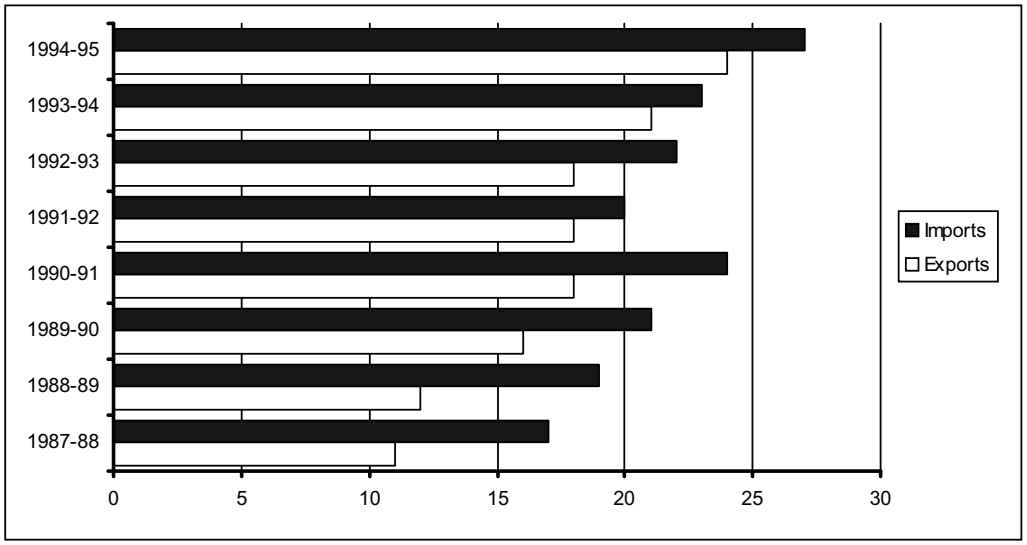
114. The equity base of these companies remained unchanged. Then the total dividend earning by the share holders in 1991-92 is

(a) Rs.104 lakh (b) Rs.9 lakh

(c) Rs.12.8 lakh (d) Rs.15.6 lakh

Directions for Questions 115 to 119: *Answer the question on the basis of the information given below.*

Foreign trade (in billion dollars)



115. In which year was the trade deficit highest?
(a) 1987-88 (b) 1988-89
(c) 1989-90 (d) 1990-91

116. In how many years was the trade deficit less than the trade deficit in the succeeding year?
(a) 1 (b) 2
(c) 3 (d) 4

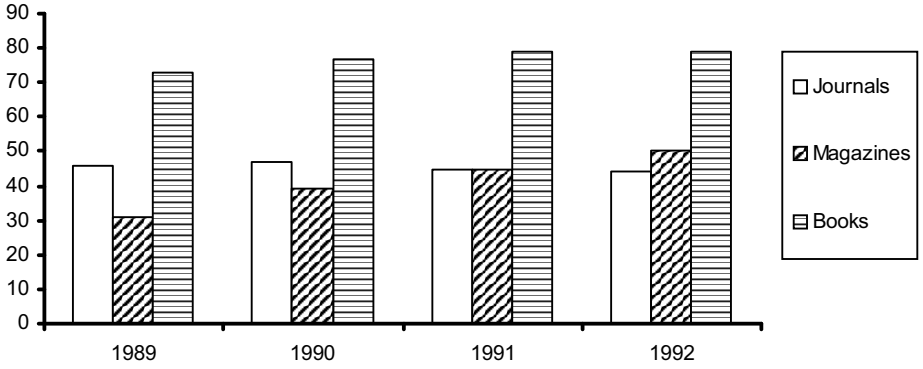
117. Export earning in 1990-91 is how many per cent of imports in 1991-92?
(a) 82% (b) 85%
(c) 90% (d) 15%

118. In the last three years, the total export earnings have accounted for how many per cent of the value of the imports?
(a) 80% (b) 83%
(c) 95% (d) 88%

119. Which of the following statements can be inferred from the graph?
I. In all the years shown in the graph, the trade deficit is less than the export earning.
II. Export earnings increased in every year between 1989-90 and 1991-92.
III. In all the years shown in the graph, the earning by exports is less than the expenditure on imports in the preceding year.
(a) I only
(b) II only
(c) III only
(d) I and III only

Directions for Questions 120 to 124: *Answer the questions on the basis of the information given below.*

Revenue obtained by a publishing house while selling books, magazines and journals (Rs.in lakh).



120. Which year shows the highest change in revenue obtained from journals?
(a) 1989 (b) 1990
(c) 1991 (d) 1992

121. In 1992, what per cent of the total revenue came from books?
(a) 45% (b) 55%
(c) 35% (d) 25%

122. The number of years in which there was an increase in revenue from at least two categories is
(a) 1 (b) 2
(c) 3 (d) 4

123. If 1993 were to show the same growth as 1992 over 1991, the revenue in 1993 must be
(a) Rs.194 lakh
(b) Rs.187 lakh
(c) Rs.172 lakh
(d) Rs.177 lakh

124. The growth in total revenue from 1989 to 1992 is
(a) 21% (b) 28%
(c) 15% (d) 11%

Directions for Questions 125 to 129: *Answer the questions on the basis of the information given below.*

Machine M1 as well as machine M2 can independently produce either product P or product Q. The time taken by machines M1 and M2 (in minutes) to produce one unit of product P and product Q are given in the table below: (Each machine works 8 hour per day).

Product	M1	M2
P	10	8
Q	6	6

125. What is the maximum number of units that can be manufactured in one day?
(a) 140 (b) 160
(c) 120 (d) 180

126. If M1 works at half its normal efficiency, what is the maximum number of units produced, if at least one unit of each must be produced?

(a) 96
(b) 89
(c) 100
(d) 119

127. What is the least number of machine hours required to produce 30 pieces of P and 25 pieces of Q respectively?

(a) 6 hr 30 min
(b) 7 hr 24 min
(c) 6 hr 48 min
(d) 4 hr 6 min

128. If the number of units of P is to be three times that of Q, what is the maximum idle time to maximize total units manufactured?

(a) 0 min
(b) 24 min
(c) 1 hr
(d) 2 hr

129. If equal quantities of both are to be produced, then out of the four choices given below, the least efficient way would be

(a) 48 of each with 3 min idle
(b) 64 of each with 12 min idle
(c) 53 of each with 10 min idle
(d) 71 of each with 9 min idle

Directions for Questions 130 to 134: *Answer the questions on the basis of the information given below.*

A company produces five types of shirts — A, B, C, D and E — using cloth of three qualities — high, medium and low —, using dyes of three qualities — high, medium and low. One shirt requires 1.5 m of cloth. The following table gives respectively:

1. The number of shirts (of each category) produced, in thousands,
2. The percentage distribution of cloth quality in each type of shirt, and
3. The percentage distribution of dye quality in each type of shirt.

		Distribution of cloth (%)				Distribution of dye (%)			
Shirt type	**Number in thousands**	**Shirt type**	**High**	**Medium**	**Low**	**Shirt type**	**High**	**Medium**	**Low**
A	20	A	80	20	–	A	70	15	15
B	30	B	30	40	30	B	20	50	30
C	30	C	–	70	30	C	–	60	40
D	10	D	–	60	40	D	–	40	60
E	10	E	–	10	90	E	–	20	80

130. What is the total requirement of cloth?

(a) 1,50,000 m (b) 2,00,000 m
(c) 2,25,000 m (d) 2,50,000 m

131. How many metres of low-quality cloth is consumed?

(a) 22,500 m (b) 46,500 m
(c) 60,000 m (d) 40,000 m

132. How many metres of high quality cloth is consumed by A-type shirts?

(a) 8,000 m
(b) 112,000 m
(c) 24,000 m
(d) 30,000 m

133. What is the ratio of the three qualities of dyes in high-quality cloth?

(a) 2 : 3 : 5
(b) 1 : 2 : 5
(c) 7 : 9 : 10
(d) Cannot be determined

134. What is the ratio of low-quality dye used for C-type shirts to that used for D- type shirts?

(a) 3 : 2
(b) 2 : 1
(c) 1 : 2
(d) 2 : 3

1996

Directions for Questions 135 to 139: *Answer the questions on the basis of the information given below.*

The data given in the table shows the investment details in country 'Fortune Land' of companies A, B, C, D, E and F. Figures in the table are in US dollars in billions.

	A	B	C	D	E	F
Year 1	2.5	4.6	5.8	3.11	10.6	7.8
Year 2	6.7	7.5	12.5	5.6	17.4	25.3
Year 3	11.5	18.7	21.2	7.7	29.8	60.1

135. What is the percentage increase in investment of B, C, D and E from year 1 to year 3?

(a) 121% (b) 321%

(c) 221% (d) 300%

136. What is the ratio of investments of E to F for the years 1 to 3?

(a) 31 : 19 (b) 19 : 31

(c) 20 : 29 (d) 41 : 53

137. What is D's contribution as a percentage of total investments in year 2?

(a) 8.2% (b) 4.5%

(c) 7.4% (d) 9.2%

138. For which company is investment not increased from year 1 to year 3?

(a) C (b) D

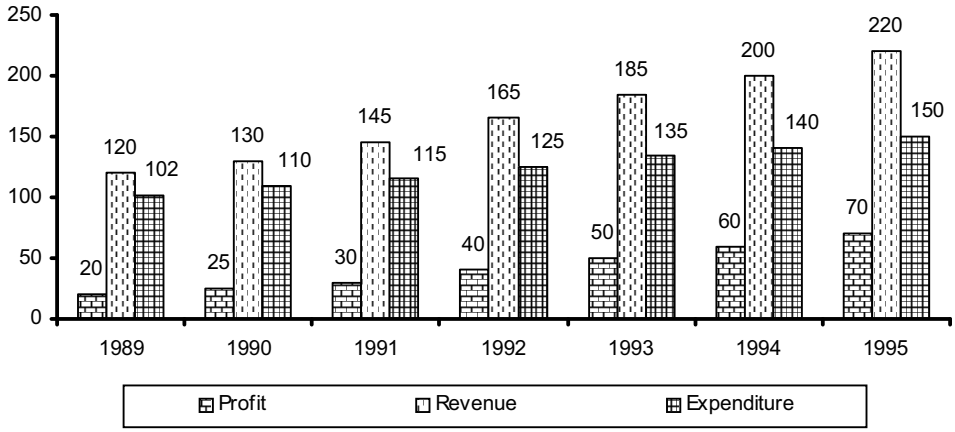
(c) F (d) None of these

139. What is the percentage difference in investments of companies A, B, C and companies D, E, F in year 2?

(a) 75% (b) 81%

(c) 67.5% (d) 42.3%

Directions for Questions 140 to 144: *Answer the questions on the basis of the information given below.*



140. The average revenue collected in the given 7 years is approximately

(a) Rs. 164 lakh (b) Rs. 168 lakh

(c) Rs. 171 lakh (d) Rs. 175 lakh

141. The expenditure for the 7 years together form what per cent of the revenues during the same period?

(a) 75% (b) 67%

(c) 62% (d) 83%

142. Which year showed the greatest percentage increase in profit as compared to the previous year?

(a) 1993 (b) 1994

(c) 1990 (d) 1992

143. In which year was the growth in expenditure maximum as compared to the previous year?

(a) 1993

(b) 1995

(c) 1991

(d) 1992

144. If the profit in 1996 shows the annual rate of growth as it had shown in 1995 over the previous year, then what approximately will be the profit in 1996?

(a) Rs. 72 lakh

(b) Rs. 82 lakh

(c) Rs. 93 lakh

(d) Rs. 78 lakh

Directions for Questions 145 to 149: *Answer the questions on the basis of the information given below.*

The following table gives data about certain coffee producers in India.

	Production ('000 tonnes)	Capacity utilisation (%)	Sales ('000 tonnes)	Total sales value (Rs. in crores)
Brooke Bond	2.97	76.50	2.55	31.15
Nestle	2.48	71.20	2.03	26.75
Lipton	1.64	64.80	1.26	15.25
MAC	1.54	59.35	1.47	17.45
Total (including others)	11.60	61.30	10.67	132.80

145. What is the maximum production capacity (in '000 tonnes) of Lipton for coffee?

(a) 2.53 (b) 2.85

(c) 2.24 (d) 2.07

146. Which company out of the four companies mentioned above has the maximum unutilised capacity (in '000 tonnes)?

(a) Lipton (b) Nestle

(c) Brooke Bond (d) MAC

147. What is the approximate total production capacity (in '000 tonnes) for coffee in India?

(a) 18 (b) 20

(c) 18.7 (d) Data insufficient

148. The highest price for coffee per kilogram is for

(a) Nestle (b) MAC

(c) Lipton (d) Data insufficient

149. What percent of the total market share (by sales value) is controlled by 'others'?

(a) 60% (b) 32%

(c) 67% (d) insufficient data

Directions for Questions 150 to 154: *Answer the questions on the basis of the information given below.*

Mulayam Software Co., before selling a package to its clients, follows the given schedule.

Month	Stage	Cost (Rs. '000 per man / month)
1-2	Specification	40
3-4	Design	20
5-8	Coding	10
9-10	Testing	15
11-15	Maintenance	10

The number of people employed in each month is:

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Number of people employed	2	3	4	3	4	5	5	4	4	1	3	3	1	1	1

150. Due to overrun in 'design', the design stage took 3 months, i.e. months 3, 4 and 5. The number of people working on design in the fifth month was 5. Calculate the percentage change in the cost incurred in the fifth month. (Due to improvement in 'coding' technique, this stage was completed in months 6-8 only.)

(a) 225% (b) 150%

(c) 275% (d) 240%

151. With reference to the above question, what is the cost incurred in the new 'coding' stage? (Under the new technique, 4 people work in the sixth month and 5 in the eighth.)

(a) Rs. 1,40,000 (b) Rs. 1,50,000

(c) Rs. 1,60,000 (d) Rs. 1,70,000

152. What is the difference in cost between the old and the new techniques?

(a) Rs. 30,000 (b) Rs. 60,000

(c) Rs. 70,000 (d) Rs. 40,000

153. Under the new technique, which stage of software development is most expensive for Mulayam Software Co.?

(a) Testing (b) Specification

(c) Coding (d) Design

154. Which five consecutive months have the lowest average cost per man-month under the new technique?

(a) 1-5 (b) 9-13

(c) 11-15 (d) None of these

Directions for Questions 155 to 169: *Answer the questions on the basis of the information given below.*

The amount of money invested (rupees in crores) in the core infrastructure areas of two districts, Chittoor and Khammam of Andhra Pradesh, is as follows.

Chittor district			Khammam district		
Core area	**1995**	**1996**	**Core area**	**1995**	**1996**
Electricity	815.2	1054.2	**Electricity**	2065.8	2365.1
Chemical	389.5	476.7	**Chemical**	745.3	986.4
Thermal	632.4	565.9	**Thermal**	1232.7	1026.3
Solar	468.1	589.6	**Solar**	1363.5	1792.1
Nuclear	617.9	803.1	**Nuclear**	1674.3	2182.1
Total	2923.1	3489.5	**Total**	7081.6	8352.0

155. By what per cent was the total investment in the two districts more in 1996 as compared to 1995?

(a) 14% (b) 21%

(c) 24% (d) 18%

156. The investment in electricity and thermal energy in 1995 in these two districts formed what per cent of the total investment made in that year?

(a) 41% (b) 47%

(c) 52% (d) 55%

157. In Khammam district, the investment in which area in 1996 showed the highest percentage increase over the investment in that area in 1995?

(a) Electricity (b) Chemical

(c) Solar (d) Nuclear

158. Approximately how many times was the total investment in Chittoor to the total investment in Khammam?

(a) 2.8 (b) 2

(c) 2.4 (d) 1.7

159. If the total investment in Khammam shows the same rate of increase in 1997, as it had shown from 1995 to 1996, what approximately would be the total investment in Khammam in 1997?

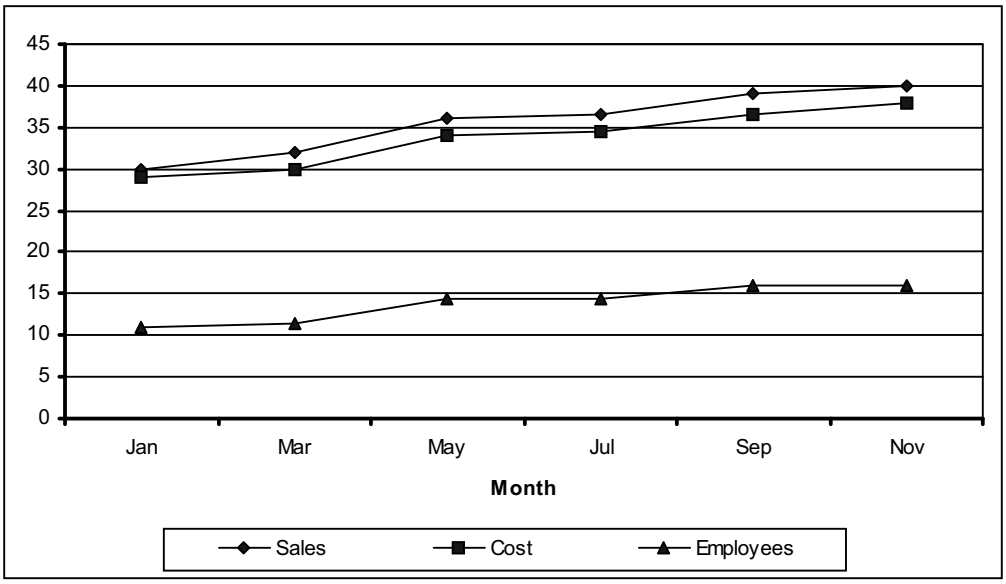
(a) Rs. 9,850 crore

(b) Rs. 10,020 crore

(c) Rs. 9,170 crore

(d) Rs. 8,540 crore

Directions for Questions 160 to 164: *Answer the questions on the basis of the information given below.*



Employees in thousands Sales – Cost = Profit

160. Which month records the highest profit?

(a) September (b) July

(c) March (d) May

161. In which month is the total increase in the cost highest as compared to two months ago?

(a) March (b) September

(c) July (d) May

162. In which month is the percentage increase in sales two months before, the highest?

(a) March (b) September

(c) July (d) May

163. Which month has the highest profit per employee?

(a) September

(b) July

(c) January

(d) March

164. Assuming that no employees left the job, how many more people did the company take on in the given period?

(a) 4,600 (b) 5,000

(c) 5,800 (d) 6,400

Directions for Questions 165 to 169: *Answer the questions on the basis of the information given below.*

The first table gives the percentage of students in MBA class, who sought employment in the areas of finance, marketing and software. The second table gives the average starting salaries of the students per month, (rupees in thousands) in these areas. The third table gives the number of students who passed out in each year.

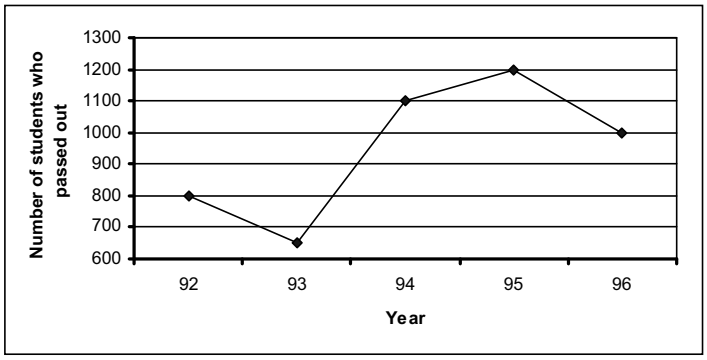
First table

	Finance	Marketing	Software	Others
1992	22	36	19	23
1993	17	48	23	12
1994	23	43	21	13
1995	19	37	16	28
1996	32	32	20	16

Second table

	Finance	Marketing	Software
1992	5450	5170	5290
1993	6380	6390	6440
1994	7550	7630	7050
1995	8920	8960	7760
1996	9810	10220	8640

Third table



165. The number of students who get jobs in finance is less than the students getting marketing jobs, in the 5 years, by

(a) 826 (b) 650

(c) 750 (d) 548

166. What is the percentage increase in the average salary of finance from 1992 to 1996?

(a) 60% (b) 32%

(c) 96% (d) 80%

167. The average annual rate at which the initial salary offered in software increases is

(a) 21% (b) 33%

(c) 15.9% (d) 65%

168. What is the average monthly salary offered to a management graduate in 1993?

(a) Rs. 6,403

(b) Rs. 6,330

(c) Rs. 6,333

(d) Cannot be determined

169. In 1994, students seeking jobs in finance earned ___ more than those opting for software (per annum).

(a) Rs. 43 lakh

(b) Rs. 33.8 lakh

(c) Rs. 28.4 lakh

(d) Rs. 38.8 lakh

1997

Directions for Questions 170 to 174: Answer the questions on the basis of the information given below.

Hotels in Mumbai

Project	No. of rooms	Cost (Rs. in crores)	Year of completion	Company
Windsor Manor	600	275	1999	IHCL
Leela Hotels	310	235	1999	Leela Hotels
Mumbai Heights	250	250	1998	Bombay Hotels
Royal Holidays	536	225	1998	Lokhandwala Group
Majestic Holiday	500	250	1999	Raheja Group
Supremo Hotel	300	300	1999	ITC
Hyatt Regency	500	250	2000	Asian Hotels

Note: All projects start in 1997.

170. Which of the following had the least cost per room?
(a) Lokhandwala Group (b) Raheja Group
(c) IHCL (d) ITC

171. Which of the following has the maximum number of rooms per crore of rupees?
(a) IHCL (b) Raheja Group
(c) Lokhandwala Group (d) ITC

Additional directions for questions 172 to 174: *Assume that the cost of the project is incurred in the year of completion; interest is charged at the rate of 10% per annum.*

172. What is the cost incurred for projects completed in 1998?
(a) Rs. 475 crore (b) Rs. 500 crore
(c) Rs. 522.5 crore (d) Rs. 502.5 crore

173. What is the cost incurred for projects completed in 1999?
(a) Rs. 1,282.6 crore
(b) Rs. 1,270 crore
(c) Rs. 1,805.1 crore
(d) Rs. 1,535 crore

174. What is the approximate cost incurred for projects completed by 2000?
(a) Rs. 1,785 (b) Rs. 2,140
(c) Rs. 2,320 (d) None of these

Directions for questions 175 to 180: *Answer the questions on the basis of the information given below.*

The graph given below shows the quantity of milk and food grains consumed annually along with female and male population (in millions). Use the data to answer the questions that follow.

175. When was the per capita production of milk least?
(a) 1990 (b) 1992
(c) 1994 (d) 1996

176. When was the per capita production of foodgrains most?
(a) 1992 (b) 1993
(c) 1994 (d) 1995

177. In which year was the difference between the percentage increase in the production of foodgrains and milk maximum?
(a) 1993 (b) 1994
(c) 1995 (d) 1996

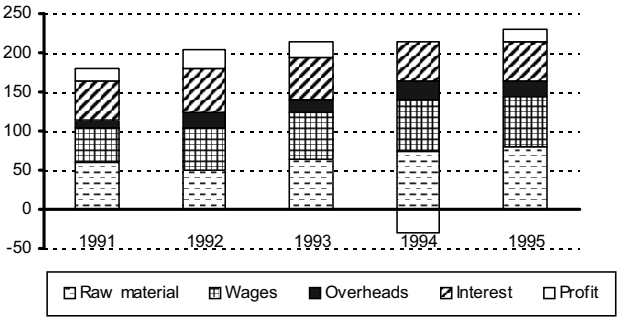
178. If milk contains 320 calories and foodgrains contain 160 calories, in which year was the per capita consumption of calories highest?
(a) 1993 (b) 1994
(c) 1995 (d) 1996

179. If one gallon milk contains 120 g of a particular nutrient and one tonne of foodgrains contains 80 g of the same nutrient, in which year was the availability of this nutrient maximum?
(a) 1993 (b) 1994
(c) 1995 (d) 1996

180. Referring to the above question, in which year was the per capita consumption of this nutrient highest?
(a) 1993 (b) 1994
(c) 1995 (d) 1996

Directions for Questions 181 to 186: *Answer the questions on the basis of the information given below.*

The graph given below gives the yearly details of money invested in producing a certain product over the years 1991 to 1995. It also gives the profit (in '000 rupees).



181. In which year was the increase in raw material maximum?
(a) 1992 (b) 1993
(c) 1994 (d) 1995

182. In which period was the change in profit maximum?

(a) 1991-92 (b) 1992-93

(c) 1993-94 (d) 1994-95

183. Which component of the cost production has remained more or less constant over the period?

(a) Interest (b) Overheads

(c) Wages (d) Raw material

184. In which year were the overheads, as a percentage of the raw material, maximum?

(a) 1995 (b) 1994

(c) 1992 (d) 1993

185. What percentage of the costs did the profits form over the period?

(a) 3% (b) 5%

(c) 8% (d) 11%

186. If the interest component is not included in the total cost calculation, which year would show the maximum profit per unit cost?

(a) 1991

(b) 1992

(c) 1993

(d) 1995

Directions for Questions 187 to 191: *Answer the questions on the basis of the information given below.*

The following table gives the tariff [in paise per kilo-watt-hour (kWh)] levied by the UPSEB in 1994-95, in four sectors and the regions within them. The table also gives the percentage change in the tariff as compared to 1991-92.

	Region 1		Region 2		Region 3		Region 4		Region 5	
	P/kWh	%	P/kWh	% incr.	P/kWh	% incr.	P/kWh	% incr.	P/kWh	% incr.
Sector 1	425	+15	472	+5	420	–4	415	+8	440	+10
Sector 2	430	+12	468	+8	448	+7	423	–3	427	+11
Sector 3	428	+8	478	–4	432	+6	441	+10	439	+8
Sector 4	434	–5	470	+15	456	+10	451	+12	446	–12

187. If the amount of power consumed by the various regions in sector 1 is the same, then as compared to 1991-92 the net tariff in 1994-95

(a) increased by 6.5%

(b) decreased by 3.5%

(c) increased by 10.2%

(d) decreased by 7.3%

188. What was the approximate average tariff in region 3 in 1991-92?

(a) 407

(b) 420

(c) 429

(d) None of these

Additional directions for questions 189 to 191: *The UPSEB supplies power under four categories: urban (25%), domestic (20%), industrial (40%) and rural (15%). In 1994-95, the total power produced by the UPSEB was, 7875 megawatts.*

189. In 1994-95, if there was 10% decrease in the domestic consumption of power as compared to that in 1991-92, what was the consumption of power in the rural sector in 1991-92?

(a) 1,312 megawatts

(b) 1,422 megawatts

(c) 1,750 megawatts

(d) None of these

190. In the given 2 years, what is the total tariff paid by the urban sector?

(a) Rs. 22.4 lakh

(b) Rs. 21.6 lakh

(c) Rs. 27.2 lakh

(d) Cannot be determined

191. Which of the following statements is true?

(a) The average tariff in region 4 is 437.5 p/kWh

(b) The average tariff in region 2 is greater than the average tariff in region 5

(c) In 1991-92, the industrial sector contributed to about 42% of the total revenue from power

(d) None of these

Directions for Questions 192 to 199: *Answer the questions on the basis of the information given below.*

The table given below gives the annual details of loans from rural banks and agricultural loans over the years 1970 to 1983. Using this data answer the questions that follow.

Year	Loan from Rural Banks			Agricultural Loans		
	Number of rural banks	Average number of loans	Average size (in Rs.)	No. ('000)	Value (Rs. in millions)	Consumer price index
1970	90	28	109	18.3	2.00	43
1971	115	39	133	20.4	3.58	49
1972	130	52	178	25.1	6.26	55
1974	260	98	243	41.2	34.54	70
1975	318	121	283	51.4	52.21	78
1980	605	288	567	135.7	498.4	131
1981	665	312	622	152.8	612.4	137
1983	840	380	711	211.6	915.7	149

192. In 1974, the amount of agricultural loans formed what percentage of the total loans?

(a) 85% (b) 71%

(c) 77% (d) Cannot be determined

193. From the given data, the number of rural loans up to 1980 formed approximately what percentage of those in 1983?

(a) 112% (b) 80%

(c) 97% (d) Cannot be determined

194. Which of the following pairs of years showed the maximum increase in the number of rural bank loans?

(a) 1971-72 (b) 1974-75

(c) 1970-71 (d) 1980-81

195. What is the value of the agricultural loans in 1983 at 1970 prices?

(a) Rs.326 (b) Rs.264

(c) Rs.305 (d) None of these

196. In which year was the number of rural bank loans per rural bank least?

(a) 1974 (b) 1971

(c) 1970 (d) 1975

197. What is the simple annual rate of increase in the number of agricultural loans from 1970 to 1983?

(a) 132% (b) 81%

(c) 75% (d) 1056%

Additional directions for questions 198 and 199: *If the consumer price index for 1970 is to be taken as 105 and the indices for the subsequent years are to be corrected accordingly, then answer 184 and 185.*

198. By roughly how many points do the indices for 1983 and 1975 differ?

(a) 174 (b) 180

(c) 188 (d) 195

199. What is the value of the loans in 1980 at 1983 prices?

(a) Rs.570 million

(b) Rs.680 million

(c) Rs.525 million

(d) Rs.440 million

1998

Directions for Questions 200 to 202: *Answer the questions on the basis of the information given below.*

A, B, C and D collected one-rupee coins following the given pattern.

Together they collected 100 coins.

Each one of them collected even number of coins.

Each one of them collected at least 10 coins.

No two of them collected the same number of coins.

200. The maximum number of coins collected by any one of them cannot exceed

(a) 64 (b) 36

(c) 54 (d) None of these

201. If A collected 54 coins, then the difference in the number of coins between the one who collected maximum number of coins and the one who collected the second highest number of coins must be at least

(a) 12 (b) 24

(c) 30 (d) None of these

202. If A collected 54 coins and B collected two more coins than twice the number of coins collected by C, then the number of coins collected by B could be

(a) 28 (b) 20

(c) 26 (d) 22

Directions for Questions 203 to 208: *Answer the questions on the basis of the information given below.*

The following table gives the quantity of apples (in tonnes) arriving at New Delhi market from various states in a particular year. The month in which demand was more than supply, the additional demand was met by the stock from cold storage.

Month	State			Cold storage	Total
	HP	UP	J & K		
April	7	0	7	59	73
May	12	1	0	0	13
June	9,741	257	8,017	0	18,015
July	71,497	0	18,750	0	90,247
August	77,675	0	20,286	0	97,961
September	53,912	0	56,602	0	1,10,514
October	12,604	0	79,591	24	92,219
November	3,499	0	41,872	42	45,413
December	1,741	0	14,822	15	16,578
January	315	0	10,922	201	11,438
February	25	0	11,183	77	11,285
March	0	0	683	86	769

203. What was the maximum percentage of apples supplied by any state in any of the months?

(a) 99%

(b) 95%

(c) 88%

(d) 100%

204. Which state supplied the maximum number of apples?

(a) UP

(b) HP

(c) J & K

(d) Cold storage

205. Which state supplied the highest percentage of apples from the total apples supplied?

(a) HP

(b) UP

(c) J & K

(d) Cannot be determined

206. In which of the following periods was the supply greater than the demand?

(a) August-March

(b) June-October

(c) May-September

(d) Cannot be determined

207. If the yield per tree was 40 kg, then from how many trees were the apples supplied to New Delhi (in millions) during the year?

(a) 11.5

(b) 12.5

(c) 13.5

(d) Cannot be determined

208. Using the data in question 207, if there were 250 trees per hectare, then how many hectares of land was used?

(a) 9,400 hectares

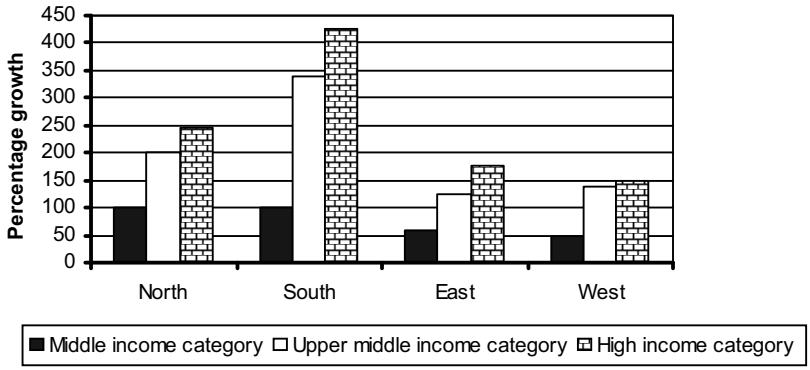
(b) 49,900 hectares

(c) 50,000 hectares

(d) 49,450 hectares

Directions for Questions 209 to 214: *Answer the questions on the basis of the information given below.*

The following bar chart gives the growth percentage in the number of households in middle, upper-middle and high income categories in the four regions for the period between 1987-88 and 1994-95.



	Number of households in 1987–88 (in thousands)	Average household income in 1987–88	Growth in average household income (1994–95 over 1987–88)
Middle income	40	Rs. 30,000	50%
Upper- middle	10	Rs. 50,000	60%
High income	5	Rs. 75,000	90%

209. Which region showed the highest growth in number of households in all the income categories for the period?

(a) North (b) South

(c) West (d) None of these

210. What was the total household income in northern region for upper-middle class?

(a) Rs. 50 lakh (b) Rs. 500 million

(c) Rs. 300 million (d) Cannot be determined

211. What is the percentage increase in total number of households for the northern region (upper-middle) over the given period?

(a) 100%

(b) 200%

(c) 240%

(d) Cannot be determined

212. What was the average income of the high-income group in 1987-88?

(a) Rs. 75,000

(b) Rs. 25,000

(c) Rs. 2,25,000

(d) Cannot be determined

Additional directions for questions 213 and 214: *The numbers of households in each category were equally distributed in all the regions.*

213. The ratio of total income for the high-income category to the upper-middle class increased by how much percentage in the given period?

(a) 20% (b) 36%

(c) 25% (d) Cannot be determined

214. The average income for the northern region in 1987-88 was

(a) Rs. 37,727 (b) Rs. 37,277

(c) Rs. 35,000 (d) Cannot be determined

Directions for Questions 215 to 219: Answer the questions on the basis of the information given below.

Krishna distributed 10-acre land to Gopal and Ram who paid him the total amount in the ratio 2 : 3. Gopal invested a further Rs. 2 lakh in the land and planted coconut and lemon trees in the ratio 5 : 1 on equal areas of land. There were a total of 100 lemon trees. The cost of one coconut was Rs. 5. The crop took 7 years to mature and when the crop was reaped in 1997, the total revenue generated was 25% of the total amount put in by Gopal and Ram together. The revenue generated from the coconut and lemon trees

was in the ratio 3 : 2 and it was shared equally by Gopal and Ram as the initial amount spent by them were equal.

215. What was the total output of coconuts?

(a) 24,000 (b) 36,000

(c) 18,000 (d) 48,000

216. What was the value of output per acre of lemon trees planted?

(a) 0.24 lakh per acre (b) 2.4 lakh per acre

(c) 24 lakh per acre (d) Cannot be determined

217. What was the amount received by Gopal in 1997?

(a) Rs. 1.5 lakh (b) Rs. 3 lakh

(c) Rs. 6 lakh (d) None of these

218. What was the value of output per tree for coconuts?

(a) Rs. 36

(b) Rs. 360

(c) Rs. 3,600

(d) Rs. 240

219. What was the ratio of yields per acre of land for coconuts and lemons (in terms of number of lemons and coconuts)?

(a) 3 : 2

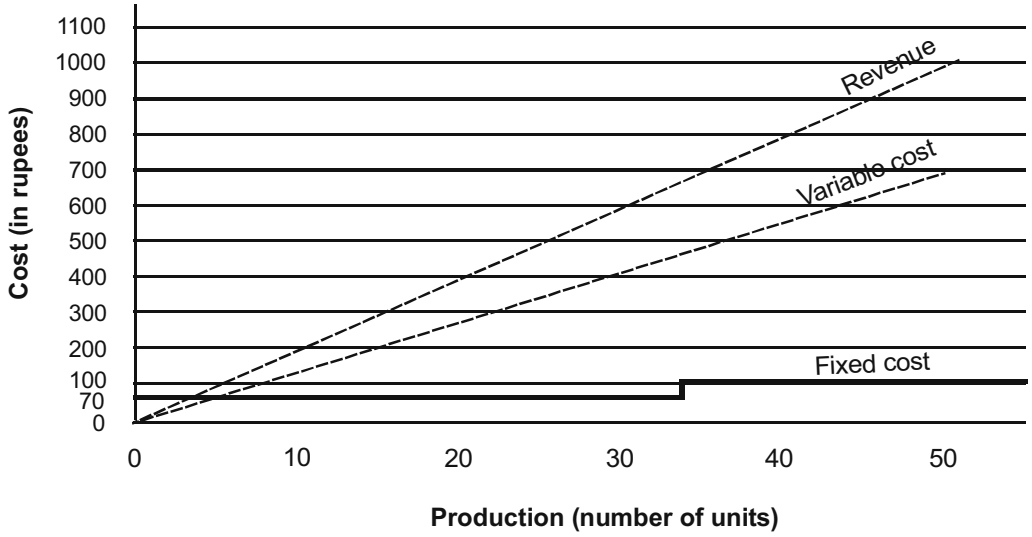
(b) 2 : 3

(c) 1 : 1

(d) Cannot be determined

Directions for Questions 220 to 224: *Answer the questions on the basis of the information given below.*

Ghosh Babu has a manufacturing unit. The following graph gives the cost for various number of units. Given: Profit = Revenue – Variable cost – Fixed cost. The fixed cost remains constant up to 34 units after which additional investment is to be done in fixed assets. In any case, production cannot exceed 50 units.



220. What is the minimum number of units that need to be produced to make sure that there was no loss?

(a) 5 (b) 10

(c) 20 (d) Indeterminable

221. How many units should be manufactured such that the profit was at least Rs. 50?

(a) 20 (b) 34

(c) 45 (d) 30

222. If at the most 40 units can be manufactured, then what is the number of units that can be manufactured to maximise profit per unit?

(a) 40 (b) 34

(c) 35 (d) 25

223. If the production cannot exceed 45 units, then what is the number of units that can maximise profit per unit?

(a) 40

(b) 34

(c) 45

(d) 35

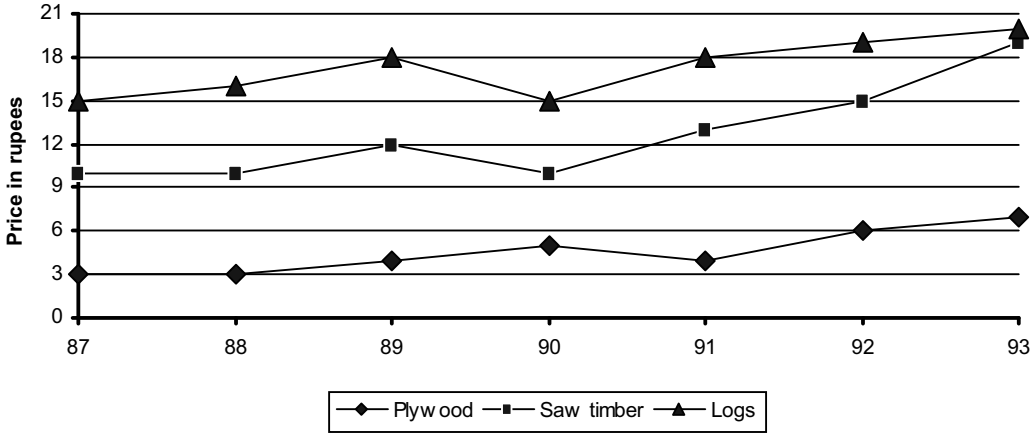
224. If the fixed cost of production goes up by Rs. 40, then what is the minimum number of units that need to be manufactured to make sure that there is no loss?

(a) 10 (b) 19

(c) 15 (d) 20

Directions for Questions 225 to 230: *Answer the questions on the basis of the information given below.*

In the following chart, the price of logs shown is per cubic metre that of plywood and saw timber is per tonne.



225. What is the maximum percentage increase in price per cubic metre or per tonne over the previous year?

(a) 33.33% (b) 85%

(c) 50% (d) Cannot be determined

226. Which product shows the maximum percentage increase in price over the period?

(a) Saw timber (b) Plywood

(c) Logs (d) Cannot be determined

227. If $1\,m^3$ = 750 kg for saw timber, find in which year was the difference in prices of saw timber and logs the least?

(a) 1989 (b) 1990

(c) 1991 (d) 1992

228. If one cubic metre = 700 kg for plywood and 800 kg for saw timber, find in which year was the difference in the prices of plywood and saw timber (per cubic metre) the maximum?

(a) 1989 (b) 1990

(c) 1991 (d) 1992

229. If the volume sales of plywood, saw timber and logs were 40%, 30% and 30% respectively, then what was the average realisation in 1993 per cubic metre of sales? (Weight of one cubic metre of saw dust and plywood both = 800 kg)

(a) 18 (b) 15

(c) 16 (d) 13

230. In the previous question, if in 1994, prices increased by 5%, 1% and 10% while the volume sales break-up was 40%, 30% and 30% for plywood, saw timber and logs respectively, then what was the average realisation?

(a) 18.95 (b) 16.45

(c) 13.15 (d) 10.25

1999

Directions for Questions 231 to 233: *Answer the questions on the basis of the information given below.*

A young girl Roopa leaves home with x flowers, goes to the bank of a nearby river. On the bank of the river, there are four places of worship, standing in a row. She dips all the x flowers into the river. The number of flowers doubles. Then she enters the first place of worship, offers y flowers to the deity. She dips the remaining flowers into the river, and again the number of flowers doubles. She goes to the second place of worship, offers y flowers to the deity. She dips the remaining flowers into the river, and again the number of flowers doubles. She goes to the third place of worship, offers y flowers to the deity. She dips the remaining flowers into the river, and again the number of flowers doubles. She goes to the fourth place of worship, offers y flowers to the deity. Now she is left with no flowers in hand.

231. If Roopa leaves home with 30 flowers, the number of flowers she offers to each deity is

(a) 30 (b) 31

(c) 32 (d) 33

232. The minimum number of flowers that could be offered to each deity is

(a) 0 (b) 15

(c) 16 (d) Cannot be determined

233. The minimum number of flowers with which Roopa leaves home is

(a) 16 (b) 15

(c) 0 (d) Cannot be determined

Directions for Questions 234 to 236: *Answer the questions on the basis of the information given below.*

Recently, Ghosh Babu spent his winter vacation on Kyakya Island. During the vacation, he visited the local casino where he came across a new card game. Two players, using a normal deck of 52 playing cards, play this game. One player is called the 'dealer' and the other is called the 'player'. First, the player picks a card at random from the deck. This is called the base card. The amount in rupees equal to the face value of the base card is called the base amount. The face values of ace, king, queen and jack are ten. For other cards the face value is the number on the card. Once the 'player' picks a card from the deck, the 'dealer' pays him the base amount. Then the 'dealer' picks a card from the deck and this card is called the top card. If the top card is of the same suit as the base card, the 'player' pays twice the base amount to the 'dealer'. If the top card is of the same colour as the base card (but not the same suit), then the 'player' pays the base amount to the 'dealer'. If the top card happens to be of a different colour than the base card, the 'dealer' pays the base amount to the 'player'.

Ghosh Babu played the game four times. First time he picked eight of clubs and the 'dealer' picked queen of clubs. Second time, he picked ten of hearts and the 'dealer' picked two of spades. Next time, Ghosh Babu picked six of diamonds and the 'dealer' picked ace of hearts. Lastly, he picked eight of spades and the 'dealer' picked jack of spades. Answer the following questions based on these four games.

234. If Ghosh Babu stopped playing the game when his gain would be maximized, the gain in Rs. would have been

(a) 12
(b) 20
(c) 16
(d) 4

235. The initial money Ghosh Babu had (before the beginning of the game sessions) was Rs. X. At no point did he have to borrow any money. What is the minimum possible value of X?

(a) 16
(b) 8
(c) 100
(d) 24

236. If the final amount of money that Ghosh Babu had with him was Rs. 100, what was the initial amount he had with him?

(a) 120 (b) 8
(c) 4 (d) 96

Directions for Questions 237 and 238: *Answer the questions on the basis of the information given below.*

The following table presents the sweetness of different items relative to sucrose, whose sweetness is taken to be 1.00.

Lactose	0.16
Maltose	0.32
Glucose	0.74
Sucrose	1.00
Fructose	1.70
Saccharin	675.00

237. What is the minimum amount of sucrose (to the nearest gram) that must be added to one gram of saccharin to make a mixture that will be at least 100 times as sweet as glucose?

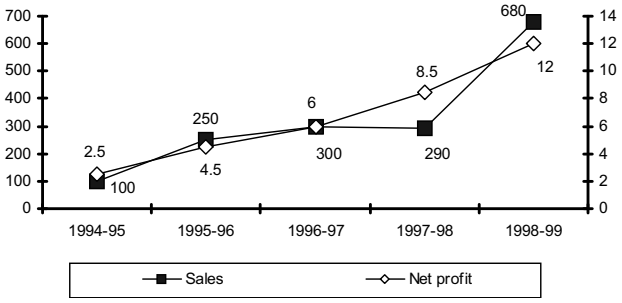
(a) 7 (b) 8
(c) 9 (d) 100

238. Approximately how many times sweeter than sucrose is a mixture consisting of glucose, sucrose and fructose in the ratio of 1 : 2 : 3?

(a) 1.3 (b) 1.0
(c) 0.6 (d) 2.3

Directions for Questions 239 to 242: *Answer the questions on the basis of the information given below.*

The figure below represents sales and net profit in Rs. crore of IVP Ltd. for five years from 1994-95 to 1998-99. During this period the sales increased from Rs. 100 crore to Rs. 680 crore. Correspondingly, the net profit increased from Rs. 2.5 crore to Rs. 12 crore. Net profit is defined as the excess of sales over total costs.



239. The highest percentage of growth in sales, relative to the previous year, occurred in

(a) 1995-96
(b) 1996-97
(c) 1997-98
(d) 1998-99

240. The highest percentage growth in net profit, relative to the previous year, was achieved in

(a) 1998-99 (b) 1997-98

(c) 1996-97 (d) 1995-96

241. Defining profitability as the ratio of net profit to sales, IVP Ltd., recorded the highest profitability in

(a) 1998-99 (b) 1997-98

(c) 1994-95 (d) 1996-97

242. With profitability as defined in question 241, it can be concluded that

(a) profitability is non-decreasing during the five years from 1994-95 to 1998-99.

(b) profitability is non-increasing during the five years from 1994-95 to 1998-99.

(c) profitability remained constant during the five years from 1994-95 to 1998-99.

(d) None of the above

Directions for Questions 243 to 248: *Answer the questions on the basis of the information given below.*

Consider the information provided in the figure below relating to India's foreign trade in 1997-98 and the first eight months of 1998-99. Total trade with a region is defined as the sum of exports and imports from that region. Trade deficit is defined as the excess of imports over exports. Trade deficit may be negative.

A. USA G. Other East European countries

B. Germany H. OPEC

C. Other EU I. Asia

D. UK J. Other LDCs

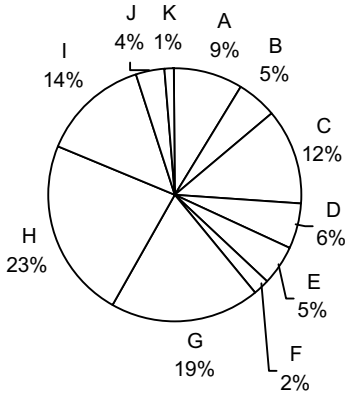
E. Japan K. Others

F. Russia

Source of imports

1997-98

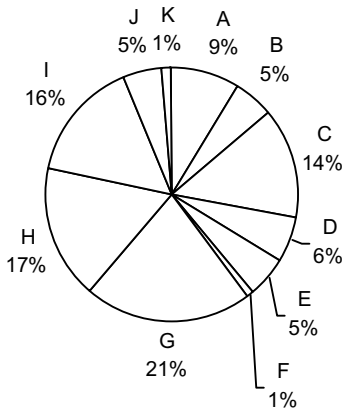
Imports into India $40,779 million



1998-99

Imports into India (April-November)

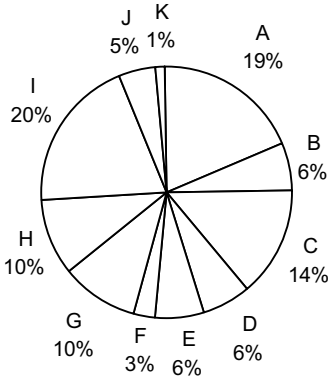
$28,126 million



Destination of exports

1997-98

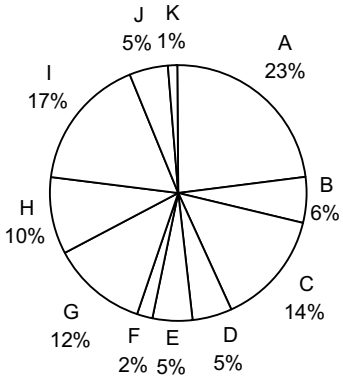
Exports from India: $33,979 million



1998-99

Exports from India (April-November)

$21,436 million



243. What is the region with which India had the highest total trade in 1997-98?

(a) USA (b) Other EU countries

(c) OPEC (d) Others

244. In 1997-98 the amount of Indian exports, million US dollars, to the region with which India had the lowest total trade, is approximately

(a) 750 (b) 340

(c) 220 (d) 440

245. In 1997-98, the trade deficit with respect to India, billion US dollars, for the region with the highest trade deficit with respect to India, is approximately equal to

(a) 6.0 (b) 3.0

(c) 4.5 (d) 7.5

246. What is the region with the lowest trade deficit with India in 1997-98?

(a) USA (b) Asia

(c) Others (d) Other EU countries

Additional directions for questions 247 and 248: *Answer the questions on the basis of the information given below.*

Assume that the average monthly exports from India and imports to India during the remaining four months of 1998-99 would be the same as that for the first eight months of the year.

247. What is the region to which India's exports registered the highest percentage growth between 1997-98 and 1998-99?

(a) Other East European countries

(b) USA

(c) Asia

(d) Exports have declined, no growth

248. What is the percentage growth rate in India's total trade deficit between 1997-98 and 1998-99?

(a) 43

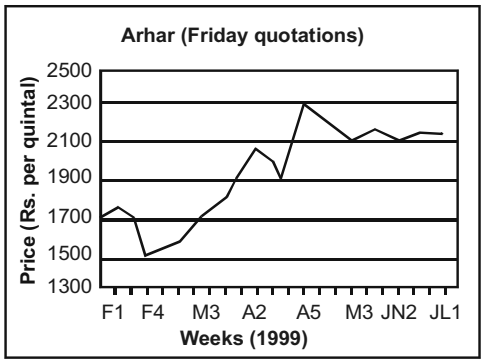
(b) 47

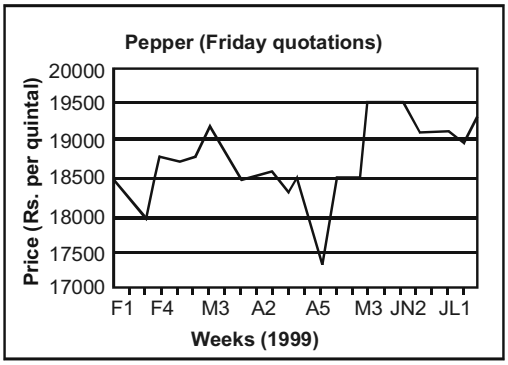
(c) 50

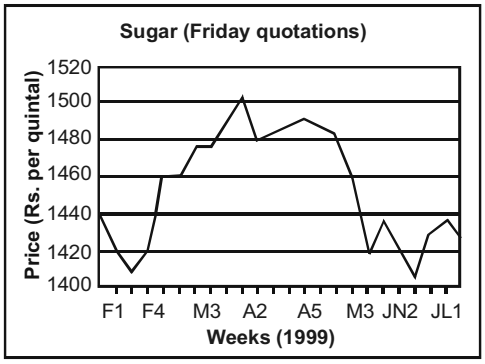
(d) 40

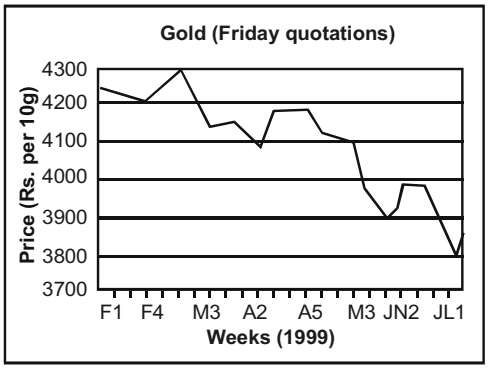
Directions for Questions 249 to 252: *Answer the questions on the basis of the information given below.*

These questions are based on the price fluctuations of four commodities — arhar, pepper, sugar and gold during February-July 1999 as described in the figures below.









249. Price change of a commodity is defined as the absolute difference in ending and beginning prices expressed as a percentage of the beginning. What is the commodity with the highest price change?

(a) Arhar (b) Pepper

(c) Sugar (d) Gold

250. Price volatility (PV) of a commodity is defined as follows:

PV = (Highest price during the period – Lowest price during the period)/Average price during the period. What is the commodity with the lowest price volatility?

(a) Arhar (b) Pepper

(c) Sugar (d) Gold

251. Mr X, a fund manager with an investment company invested 25% of his funds in each of the four commodities at the beginning of the period. He sold the commodities at the end of the period. His investments in the commodities resulted in

(a) 17% profit (b) 5.5% loss

(c) No profit, no loss (d) 5.4% profit

252. The price volatility(PV) of the commodity with the highest PV during the February-July period is approximately equal to

(a) 3% (b) 40%

(c) 20% (d) 12%

Directions for Questions 253 to 259: *Answer the questions on the basis of the information given below.*

The table below presents data on percentage population covered by drinking water and sanitation facilities in selected Asian countries.

Population covered by drinking water and sanitation facilities

Percentage coverage

	Drinking water			Sanitation facilities		
	Urban	Rural	Total	Urban	Rural	Total
India	85	79	81	70	14	29
Bangladesh	99	96	97	79	44	48
China	97	56	67	74	7	24
Pakistan	82	69	74	77	22	47
Philippines	92	80	86	88	66	77
Indonesia	79	54	62	73	40	51
Sri Lanka	88	52	57	68	62	63
Nepal	88	60	63	58	12	1

(*Source:* World Resources 1998-99, p. 251, UNDP, UNEP and World Bank.)

Country A is said to dominate B or A > B if A has higher percentage in total coverage for both drinking water and sanitation facilities, and, B is said to be dominated by A, or B < A.

A country is said to be on the coverage frontier if no other country dominates it. Similarly, a country is not on the coverage frontier if it is dominated by at least one other country.

253. Which countries are the countries on the coverage frontier?

(a) India and China

(b) Sri Lanka and Indonesia

(c) Philippines and Bangladesh

(d) Nepal and Pakistan

254. Which of the following statements are true?

A. India > Pakistan and India > Indonesia

B. India > China and India > Nepal

C. Sri Lanka > China

D. China > Nepal

(a) A and C (b) B and D

(c) A, B and C (d) B, C and D

255. Using only the data presented under 'sanitation facilities' columns, it can be concluded that rural population in India, as a percentage of its total population is approximately

(a) 76 (b) 70

(c) 73 (d) Cannot be determined

256. Again, using only the data presented under 'sanitation facilities' columns, sequence China, Indonesia and Philippines in ascending order of rural population as a percentage of their respective total population. The correct order is

(a) Philippines, Indonesia, China

(b) Indonesia, China, Philippines

(c) Indonesia, Philippines, China

(d) China, Indonesia, Philippines

257. India is not on the coverage frontier because

A. it is lower than Bangladesh in terms of coverage of drinking water facilities.

B. it is lower than Sri Lanka in terms of coverage of sanitation facilities.

C. it is lower than Pakistan in terms of coverage of sanitation facilities.

D. it is dominated by Indonesia.

(a) A and B (b) A and C

(c) D (d) None of these

Additional directions for questions 258 and 259: *These relate to the above table with the additional provision that the gap between the population coverages of 'sanitation facilities' and 'drinking water facilities' is a measure of disparity in coverage.*

258. The country with the most disparity in coverage of rural sector is

(a) India

(b) Bangladesh

(c) Nepal

(d) None of these

259. The country with the least disparity in coverage of urban sector is

(a) India

(b) Pakistan

(c) Philippines

(d) None of these

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Directions for Questions 260 to 264: *Answer these questions with reference to the table given below.*

Information Technology Industry in India

(Figures are in million US dollars)

		1994-95	1995-96	1996-97	1997-98	1998-99
Software						
	Domestic	350	490	670	950	1250
	Exports	485	734	1083	1750	2650
Hardware						
	Domestic	590	1037	1050	1205	1026
	Exports	177	35	286	201	4
Peripherals						
	Domestic	148	196	181	229	329
	Exports	6	6	14	19	18
Training		107	143	185	263	302
Maintenance		142	172	182	221	236
Networking and others		36	73	156	193	237
Total		2041	2886	3807	5031	6052

260. The total annual exports lies between 35 and 40% to the total annual business of the IT industry, in

(a) 1997-98 and 1994-95

(b) 1996-97 and 1997-98

(c) 1996-97 and 1998-99

(d) 1996-97 and 1994-95

261. The highest percentage growth in the total IT business, relative to the previous year was achieved in

(a) 1995-96

(b) 1996-97

(c) 1997-98

(d) 1998-99

262. Which one of the following statements is correct?

(a)The annual software exports steadily increased but annual hardware exports steadily declined during 1994-99.

(b) The annual peripheral exports steadily increased during 1994-99.

(c) The IT business in training during 1994-99 was higher than the total IT business in maintenance during the same period.

(d) None of the above

Additional directions for questions 263 and 264:

For any activity, A, year X dominates year Y if the IT business in activity A, in the year X is greater than the IT business in activity A in the year Y. For any two IT business activities, A and B, year X dominates year Y if

I. the IT business in activity A, in the year X, is greater than or equal to the IT business in activity A in the year Y,

II. the IT business in activity B, in the year X, is greater than or equal to the IT business in activity B in the year Y and

III. there should be strict inequality in the case of at least one activity.

263. For the IT hardware business activity, which one of the following is not true?

(a) 1997-98 dominates 1996-97

(b) 1997-98 dominates 1995-96

(c) 1995-96 dominates 1998-99

(d) 1998-99 dominates 1996-97

264. For the two IT business activities, hardware and peripherals, which one of the following is true?

(a) 1996-97 dominates 1995-96

(b) 1998-99 dominates 1995-96

(c) 1997-98 dominates 1998-99

(d) None of these

Directions for Questions 265 to 269: *Answer these questions based on the data provided in the table below.*

Factory Sector by Type of Ownership

All figures in the table are in percentage of the total for the corresponding column

Sector	Factories	Employment	Fixed capital	Gross output	Value added
Public:	7	27.7	43.2	25.8	30.8
Central Government	1	10.5	17.5	12.7	14.1
States or local government	5.2	16.2	24.3	11.6	14.9
Central and state or local government	0.8	1.0	1.4	1.5	1.8
Joint:	1.8	5.1	6.8	8.4	8.1
Wholly private	90.3	64.6	46.8	63.8	58.7
Others	0.9	2.6	3.2	2.0	2.4
Total	100	100	100	100	100

265. Suppose the average employment level is 60 per factory. The average employment in 'wholly private' factories is approximately

(a) 43 (b) 47

(c) 50 (d) 54

266. Among the firms in different sectors, value added per employee is highest in
(a) Central Government
(b) Central and States or Local Governments
(c) Joint sector
(d) Wholly private

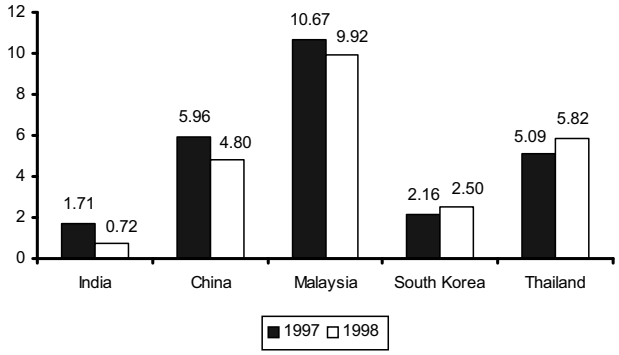
267. Capital productivity is defined as the gross output value per rupee of fixed capital. The three sectors with the higher capital productivity, arranged in descending order are
(a) Joint, Wholly private, Central and States or Local Governments
(b) Wholly private, Joint, Central and States or Local Governments
(c) Wholly private, Central and States or Local Governments, Joint
(d) Joint, Wholly private, Central

268. A sector is considered 'pareto efficient' if its value added per employee and its value added per rupee of fixed capital is higher than those of all other sectors. Based on the table data, the pareto efficient sector is
(a) Wholly private
(b) Joint
(c) Central and State or Local
(d) others

269. The total value added in all sectors is estimated at Rs. 1,40,000 crore. Suppose the number of firms in the joint sector is 2,700. The average value added per factory, in the Central Government is
(a) Rs. 141 crore (b) Rs. 14.1 crore
(c) Rs. 131 crore (d) Rs. 13.1 crore

Directions for Questions 270 to 273: *Answer these questions based on the data presented in the figure below.*

FEI for a country in a year, is the ratio (expressed as a percentage) of its foreign equity inflows to its GDP. The following figure displays the FEIs for select Asian countries for 1997 and 1998.



270. The country with the highest percentage change in FEI in 1998 relative to its FEI in 1997, is
(a) India (b) China
(c) Malaysia (d) Thailand

271. Based on the data provided, it can be concluded that
(a) absolute value of foreign equity inflows in 1998 was higher than that in 1997 for both Thailand and South Korea.
(b) absolute value of foreign equity inflows was higher in 1998 for Thailand and lower for China than the corresponding values in 1997.
(c) absolute value of foreign equity inflows was lower in 1998 for both India and China than the corresponding values in 1997.
(d) None of the above can be inferred

272. It is known that China's GDP in 1998 was 7% higher than its value in 1997, while India's GDP grew by 2% during the same period. The GDP of South Korea, on the other hand, fell by 5%. Which of the following statements is/are true?
I. Foreign equity inflows to China were higher in 1998 than in 1997.
II. Foreign equity inflows to China were lower in 1998 than in 1997.
III. Foreign equity inflows to India were higher in 1998 than in 1997.
IV. Foreign equity inflows to South Korea decreased in 1998 relative to 1997.
V. Foreign equity inflows to South Korea increased in 1998 relative to 1997.
(a) I, III and IV (b) II, III and IV
(c) I, III and V (d) II and v

273. China's foreign equity inflows in 1998 were 10 times that of India. It can be concluded that
(a) China's GDP in 1998 was 40% higher than that of India
(b) China's GDP in 1998 was 70% higher than that of India
(c) China's GDP in 1998 was 50% higher than that of India
(d) no inference can be drawn about relative magnitudes of China's and India's GDPs

Directions for Questions 274 to 275: *Answer the questions based on the table below.*

The table shows trends in external transactions of Indian corporate sector during the period 1993-94 to 1997-98. In addition, following definitions hold good:

$Sales_i$, $Imports_i$, and $Exports_i$ respectively denote the sales, imports and exports in year i.

Deficit for year i, $Deficit_i = Imports_i - Exports_i$

Deficit Intensity in year i, $DI_i = Deficit_i / Sales_i$

Growth rate of deficit intensity in year i,

$GDI_i = (DI_i - DI_{i-1}) / DI_{i-1}$

Further, note that all imports are classified as either raw material or capital goods.

Trends in External Transactions of Indian Corporate Sector

(All figures in per cent)

Year	1997-98	1996-97	1995-96	1994-95	1993-94
Export intensity*	9.2	8.2	7.9	7.5	7.3
Import intensity*	14.2	16.2	15.5	13.8	12.4
Imported raw material/Total cost of raw material	20.2	19.2	17.6	16.3	16
Imported capital goods/Gross fixed assets	17.6	9.8	11.8	16.3	19.5

* Ratio of Exports (or Imports) to sales.

274. The highest growth rate in deficit intensity was recorded in

(a) 1994-95 (b) 1995-96

(c) 1996-97 (d) 1997-98

275. The value of the highest growth rate in deficit intensity is approximately

(a) 8.45% (b) 2.15%

(c) 33.3% (d) 23.5%

276. In 1997-98 the total cost of raw material is estimated as 50% of sales of that year. The turnover of gross fixed assets, defined as the ratio of sales to gross fixed assets, in 1997-98 is, approximately

(a) 3.3

(b) 4.3

(c) 0.33

(d) Not possible to determine

277. Which of the following statements can be inferred to be true from the given data?

(a) During the 5-year period between 1993-94 and 1997-98 exports have increased every year.

(b) During the 5-year period 1993-94 and 1997-98, imports have decreased every year.

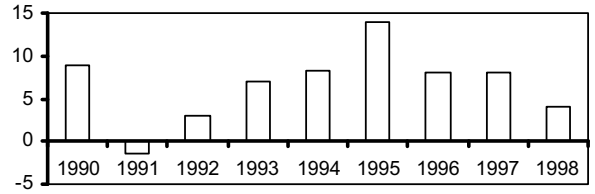
(c) Deficit in 1997-98 was lower than that in 1993-94.

(d) Deficit intensity has increased every year between 1993-94 and 1996-97.

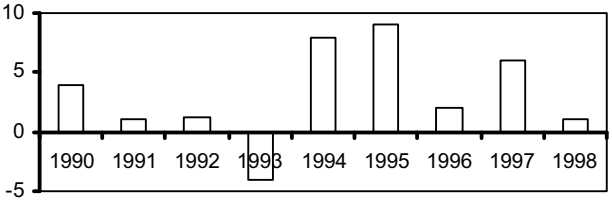
Directions for Questions 278 to 283: *Answer the questions based on the data given below.*

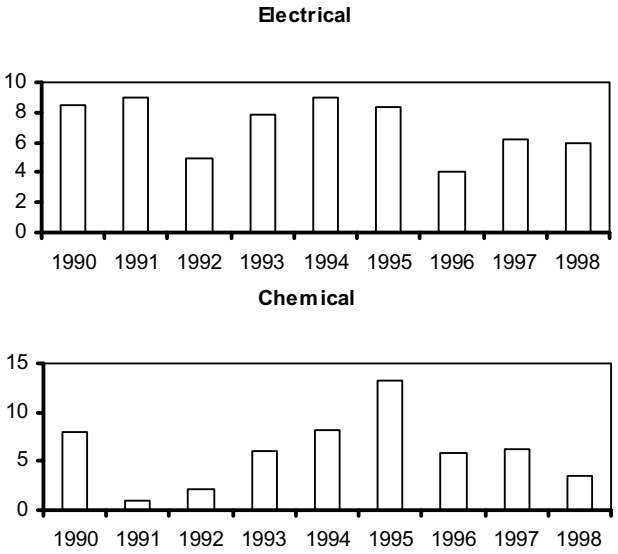
The figures below present annual growth rate, expressed as the percentage change relative to the previous year, in four sectors of the economy of the Republic of Reposia during the 9-year period from 1990 to 1998. Assume that the index of production for each of the four sectors is set at 100 in 1989. Further, the four sectors: manufacturing, mining and quarrying, electricity, and chemicals, respectively, constituted 20%, 15%, 10% and 15% of total industrial production in 1989.

Manufacturing



Mining and quarrying





278. Which is the sector with the highest growth during the period 1989 to 1998?

(a) Manufacturing (b) Mining and quarrying

(c) Electricity (d) Chemical

279. The overall growth rate in 1991 of the four sectors together is approximately

(a) 10% (b) 1%

(c) 2.5% (d) 1.5%

280. When was the highest level of production in the manufacturing sector achieved during the 9-year period 1990-98?

(a) 1998 (b) 1995

(c) 1990 (d) Cannot be determined

281. When was the lowest level of production of the mining and quarrying sector achieved during the 9-year period 1990-98?

(a) 1996 (b) 1993

(c) 1990 (d) Cannot be determined

282. The percentage increase of production in the four sectors, namely, manufacturing, mining and quarrying, electricity and chemicals, taken together in 1994, relative to 1989 is approximately

(a) 25% (b) 20%

(c) 50% (d) 40%

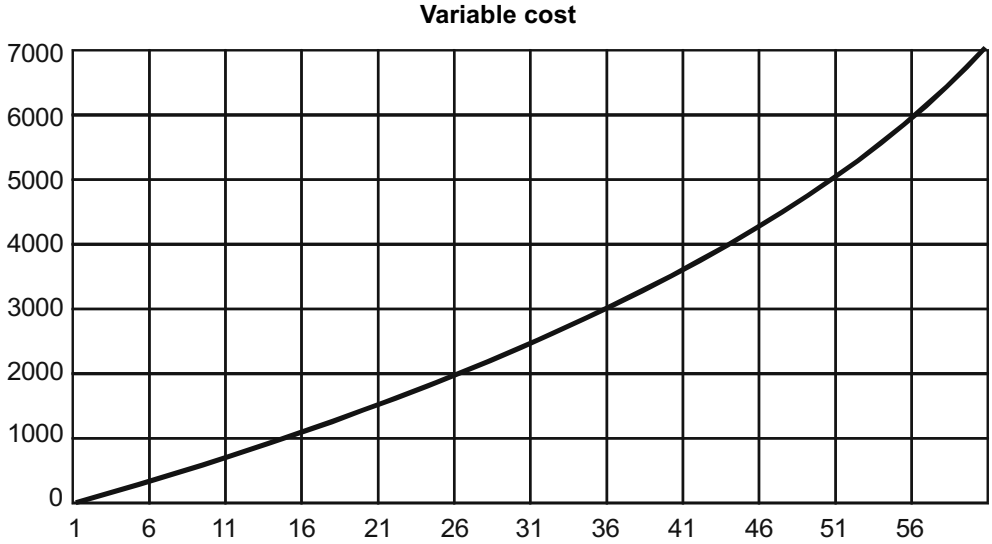
283. It is known that the index of total industrial production in 1994 was 50% more than that in 1989. Then, the percentage increase in production between 1989 and 1994 in sectors other than the four listed above is

(a) 57.5% (b) 87.5%

(c) 127.5% (d) 47.5%

Directions for Questions 284 to 289: Answer the questions based on the following information.

ABC Ltd. produces widgets for which the demand is unlimited and they can sell all of their production. The graph below describes the monthly variable costs incurred by the company as a function of the quantity produced. In addition, operating the plant for the first shift results in a fixed monthly cost of Rs. 800. Fixed monthly costs for second shift operation is estimated at Rs. 1,200. Each shift operation provides capacity for producing 30 widgets per month.



Note: Average unit cost, AC = $\frac{\text{Total monthly costs}}{\text{Monthly production}}$ and marginal cost, MC is the rate of change in total cost for unit change in quantity produced.

284. Total production in July is 40 units. What is the approximate average unit cost for July?

(a) 3,600 (b) 90

(c) 140 (d) 115

285. ABC Ltd. is considering increasing the production level. What is the approximate marginal cost of increasing production from its July level of 40 units?

(a) 110 (b) 130

(c) 150 (d) 160

286. From the data provided it can be inferred that, for production levels in the range of 0 to 60 units,

(a) MC is an increasing function of production quantity.

(b) MC is a decreasing function of production quantity.

(c) initially MC is a decreasing function of production quantity, attains a minimum and then it is an increasing function of production quantity.

(d) None of the above.

287. Suppose that each widget sells for Rs. 150. What is the profit earned by ABC Ltd. in July?

(Profit is defined as the excess of sales revenue over total cost.)

(a) 2,400 (b) 1,600

(c) 400 (d) 0

288. Assume that the unit price is Rs. 150 and profit is defined as the excess of sales revenue over total costs. What is the monthly production level of ABC Ltd. at which the profit is highest?

(a) 30 (b) 50

(c) 60 (d) 40

289. For monthly production level in the range of 0 to 30 units,

(a) AC is always higher than MC.

(b) AC is always lower than MC.

(c) AC is lower than MC up to a certain level and then is higher than MC.

(d) None of the above.

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Directions for Questions 290 to 293: *Answer the questions based on the table given below.*

The following table describes garments manufactured based upon the colour and size for each lay. There are four sizes: M – medium, L – large, XL – extra large and XXL – extra extra large. There are three colours: yellow, red and white.

Lay	Number of Garments											
	Yellow				Red				White			
Lay No.	M	L	XL	XXL	M	L	XL	XXL	M	L	XL	XXL
1	14	14	7	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	42	42	21	0
3	20	20	10	0	18	18	9	0	0	0	0	0
4	20	20	10	0	0	0	0	0	30	30	15	0
5	0	0	0	0	24	24	12	0	30	30	15	0
6	22	22	11	0	24	24	12	0	32	32	16	0
7	0	24	24	12	0	0	0	0	0	0	0	0
8	0	20	20	10	0	2	2	1	0	0	0	0
9	0	20	20	10	0	0	0	0	0	22	22	11
10	0	0	0	0	0	26	26	13	0	20	20	10
11	0	22	22	11	0	26	26	13	0	22	22	11
12	0	0	2	2	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	20	20
14	0	0	0	0	0	0	0	0	0	0	22	22
15	0	0	10	10	0	0	2	2	0	0	22	22
16	0	0	0	0	1	0	0	0	1	0	0	0
17	0	0	0	0	0	5	0	0	0	0	0	0
18	0	0	0	0	0	32	0	0	0	0	0	0
19	0	0	0	0	0	32	0	0	0	0	0	0
20	0	0	0	0	0	5	0	0	0	0	0	0
21	0	0	0	18	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	26	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	22
24	0	0	0	8	0	0	0	1	0	0	0	0
25	0	0	0	8	0	0	0	0	0	0	0	12
26	0	0	0	0	0	0	0	1	0	0	0	14
27	0	0	0	8	0	0	0	2	0	0	0	12
Production	76	162	136	97	67	194	89	59	135	198	195	156
Order	75	162	135	97	67	194	89	59	135	197	195	155
Surplus	1	0	1	0	0	0	0	0	0	1	0	1

290. How many lays are used to produce yellow fabrics?

(a) 10 (b) 11

(c) 12 (d) 14

291. How many lays are used to produce XXL fabrics?

(a) 15 (b) 16

(c) 17 (d) 18

292. How many lays are used to produce XXL yellow or XXL white fabrics?

(a) 8 (b) 9

(c) 10 (d) 15

293. How many varieties of fabrics, which exceed the order, have been produced?

(a) 3 (b) 4

(c) 5 (d) 6

Directions for Questions 294 to 297: *Answer the questions based on the table given below concerning the busiest 20 international airports in the world.*

No.	Name	International Airport Type	Code	Location	Passengers
1	Hartsfield	A	ATL	Atlanta, Georgia, USA	77939536
2	Chicago-O'Hare	A	ORD	Chicago, Illinois, USA	72568076
3	Los Angeles	A	LAX	Los Angeles, California, USA	63876561
4	Heathrow Airport	E	LHR	London, United Kingdom	62263710
5	DFW	A	DFW	Dallas/Ft. Worth, Texas, USA	60000125
6	Haneda Airport	F	HND	Tokyo, Japan	54338212
7	Frankfurt Airport	E	FRA	Frankfurt, Germany	45858315
8	Roissy-Charles de Gaulle	E	CDG	Paris, France	43596943
9	San Francisco	A	SFO	San Francisco, California, USA	40387422
10	Denver	A	DIA	Denver, Colorado, USA	38034231
11	Amsterdam Schiphol	E	AMS	Amsterdam, Netherlands	36781015
12	Minneapolis - St. Paul	A	MSP	Minneapolis-St. Paul, USA	34216331
13	Detroit Metropolitan	A	DTW	Detroit, Michigan, USA	34038381
14	Miami	A	MIA	Miami, Florida, USA	33899246
15	Newark	A	EWR	Newark, New Jersey, USA	33814000
16	McCarran	A	LAS	Las Vegas, Nevada, USA	33669185
17	Phoenix Sky Harbor	A	PHX	Phoenix, Arizona, USA	33533353
18	Kimpo	FE	SEL	Seoul, Korea	33371074
19	George Bush	A	IAH	Houston, Texas, USA	33089333
20	John F. Kennedy	A	JFK	New York, New York, USA	32003000

294. How many international airports of type 'A' account for more than 40 million passengers?

(a) 4

(b) 5

(c) 6

(d) 7

295. What percentage of top ten busiest airports is in the United States of America?

(a) 60%

(b) 80%

(c) 70%

(d) 90%

296. Of the five busiest airports, roughly, what percentage of passengers in handled by Heathrow Airport?

(a) 30
(b) 40
(c) 20
(d) 50

297. How many international airports not located in the USA handle more than 30 million passengers?

(a) 5
(b) 6
(c) 10
(d) 14

Directions for Questions 298 to 303: *Answer the questions based on the two graphs shown below.*

Figure I shows the amount of work distribution, in man-hours, for a software company between offshore and onsite activities. Figure 2 shows the estimated and actual work effort involved in the different offshore activities in the same company during the same period. [**Note:** Onsite refers to work performed at the customer's premise and offshore refers to work performed at the developer's premise.]

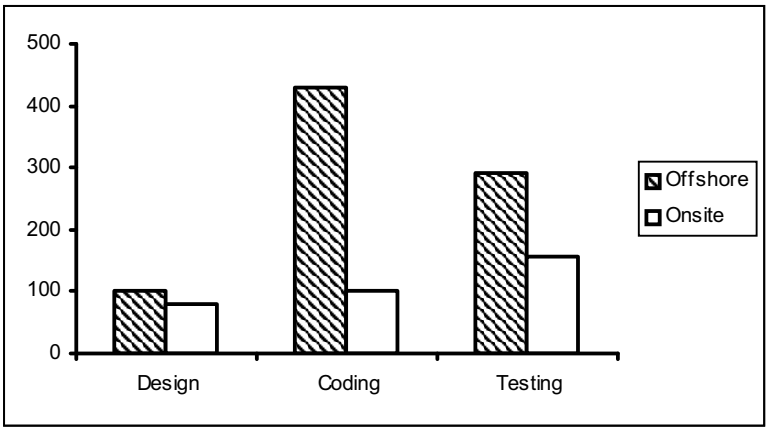


Figure 1

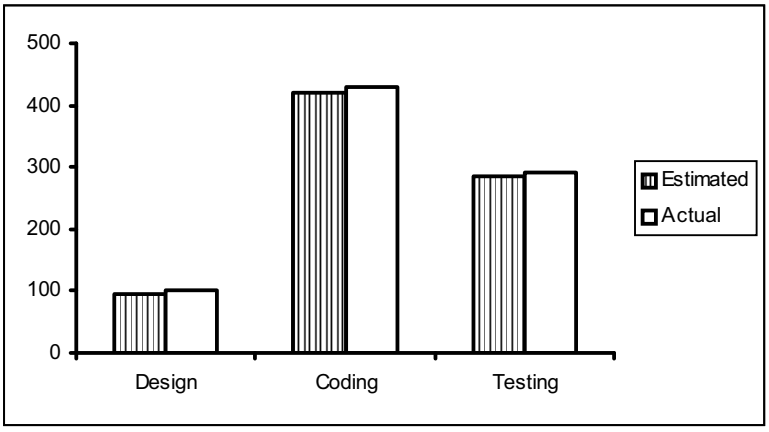


Figure 2

298. Which work requires as many man-hours as that spent in coding?

(a) Offshore, design and coding
(b) Offshore coding
(c) Testing
(d) Offshore, testing and coding

299. Roughly, what percentage of the total work is carried out onsite?

(a) 40%
(b) 20 %
(c) 30 %
(d) 10 %

300. The total effort in man-hours spent onsite is nearest to which of the following?

(a) The sum of the estimated and actual effort for offshore design.

(b) The estimated man-hours of offshore coding.

(c) The actual man-hours of offshore testing.

(d) Half of the man-hours of estimated offshore coding.

301. If the total working hours were 100, which of the following tasks will account for approximately 50 hr?

(a) Coding

(b) Design

(c) Offshore testing

(d) Offshore testing plus design

302. If 50% of the offshore work were to be carried out onsite, with the distribution of effort between the tasks remaining the same, the proportion of testing carried out offshore would be

(a) 40% (b) 30%

(c) 50% (d) 70%

303. If 50% of the offshore work were to be carried out onsite, with the distribution of effort between the tasks remaining the same, which of the following is true of all work carried out onsite?

(a) The amount of coding done is greater than that of testing.

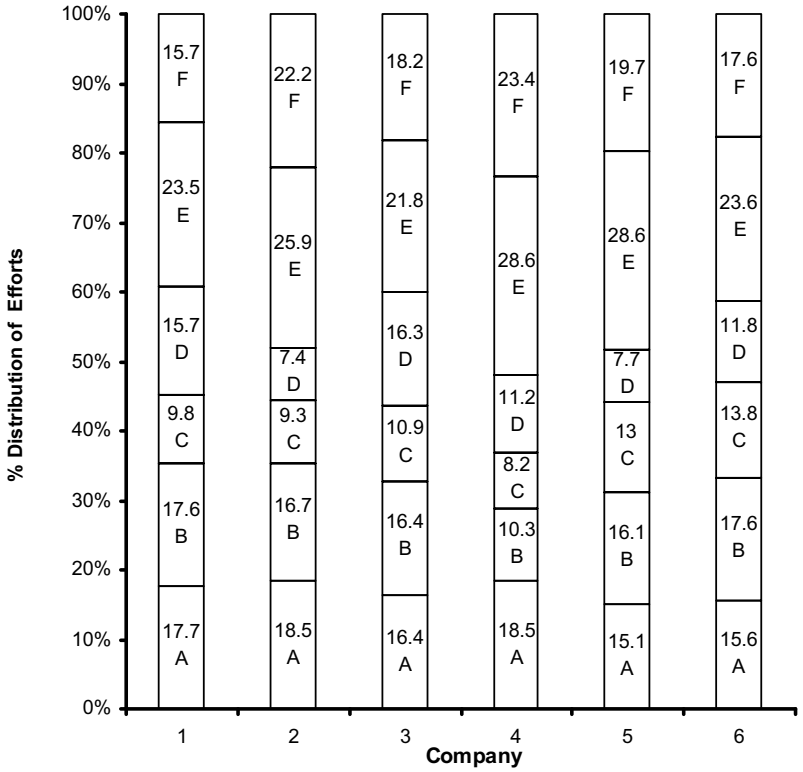
(b) The amount of coding done onsite is less than that of design done onsite.

(c) The amount of design carried out onsite is greater than that of testing.

(d) The amount of testing carried out offshore is greater than that of total design.

Directions for Questions 304 to 306: *Answer these questions based on the data given below:*

There are six companies, 1 through 6. All of these companies use six operations, A through F. The following graph shows the distribution of efforts put in by each company in these six operations.



304. Suppose effort allocation is inter-changed between operations B and C, then C and D, and then D and E. If companies are then ranked in ascending order of effort in E, what will be the rank of company 3?

(a) 2 (b) 3

(c) 4 (d) 5

305. A new technology is introduced in company 4 such that the total effort for operations B through F get evenly distributed among these. What is the change in the percentage of effort in operation E?

(a) Reduction of 12.3 (b) Increase of 12.3

(c) Reduction of 5.6 (d) Increase of 5.6

306. Suppose the companies find that they can remove operations B, C and D and redistribute the effort released equally among the remaining operations. Then which operation will show the maximum across all companies and all operations?

(a) Operation E in company 1 (b) Operation E in company 4

(c) Operation F in company 5 (d) Operation E in company 5

Directions for Questions 307 to 309: *Answer the questions based on the pie charts given below.*

Chart 1 shows the distribution of 12 million tonnes of crude oil transported through different modes over a specific period of time. Chart 2 shows the distribution of the cost of transporting this crude oil. The total cost was Rs. 30 million

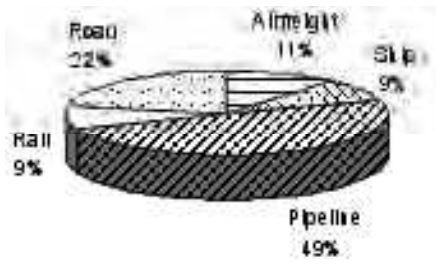


Chart 1: Volume transported

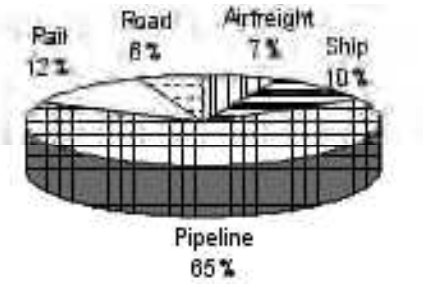


Chart 2: Cost of transportation

307. The cost in rupees per tonne of oil moved by rail and road happens to be roughly

(a) Rs. 3 (b) Rs. 1.5

(c) Rs. 4.5 (d) Rs. 8

308. From the charts given, it appears that the cheapest mode of transport is

(a) road (b) rail

(c) pipeline (d) ship

309. If the costs per tonne of transport by ship, air and road are represented by P, Q and R respectively, which of the following is true?

(a) R > Q > P

(b) P > R > Q

(c) P > Q > R

(d) R > P > Q

2002

Directions for Questions 310 to 312: *Answer these questions based on the table given below.*

The following table provides data on the different countries and location of their capitals. (the data may not match the actual Latitude, Longitudes) Answer the following questions on the basis of this table.

S.No.	Country	Capital	Latitude	Longitude
1	Argentina	Buenos Aires	34.30 S	58.20 E
2	Australia	Canberra	35.15 S	149.08 E
3	Austria	Vienna	48.12 N	16.22 E
4	Bulgaria	Sofia	42.45 N	23.20 E
5	Brazil	Brasilia	15.47 S	47.55 E
6	Canada	Ottawa	45.27 N	75.42 E
7	Cambodia	Phnom Penh	11.33 N	104.55 E
8	Equador	Quito	0.15 S	78.35 E
9	Ghana	Accra	5.35 N	0.60 E
10	Iran	Teheran	35.44 N	51.30 E
11	Ireland	Dublin	53.20 N	6.18 E
12	Libya	Tripoli	32.49 N	13.07 E
13	Malaysia	Kuala Lumpur	3.90 N	101.41 E
14	Peru	Lima	12.05 S	77.0 E
15	Poland	Warsaw	52.13 N	21.0 E
16	New Zealand	Wellington	41.17 S	174.47 E
17	Saudi Arabia	Riyadh	24.41 N	46.42 E
18	Spain	Madrid	40.25 N	3.45 W
19	Sri Lanka	Colombo	6.56 N	79.58 E
20	Zambia	Lusaka	15.28 S	28.16 E

310. What percentage of cities located within 10°E and 40°E (20° East and 40° East) lie in the Southern Hemisphere?

(a) 15% (b) 20%

(c) 25% (d) 30%

311. The number of cities whose names begin with a consonant and are in the Northern Hemisphere in the table

(a) exceeds the number of cities whose names begin with a consonant and are in the southern hemisphere by 1.

(b) exceeds the number of cities whose names begin with a consonant and are in the southern hemisphere by 2.

(c) is less than the number of cities whose names begin with a consonant and are in the east of the meridian by 1.

(d) is less than the number of countries whose name begins with a consonant and are in the east of the meridian by 3.

312. The ratio of the number of countries whose name starts with vowels and located in the southern hemisphere, to the number of countries, the name of whose capital cities starts with a vowel in the table above is

(a) 3 : 2 (b) 3 : 3

(c) 3 : 1 (d) 4 : 3

Directions for Questions 313 to 316: *Answer the questions based on the following information.*

The following table gives details regarding the total earnings of 15 employees and the number of days they have worked on complex, medium and simple operation in the month of June 2002. Even though the employees might have worked on an operation, they would be eligible for earnings only if they have minimum level of efficiency.

	Total Earnings				Total Days			
Emp. No	Complex	Medium	Simple	Total	Complex	Medium	Simple	Total
2001147	82.98		636.53	719.51	3.00	0.00	23.00	26.00
2001148	51.53		461.73	513.26	3.33	1.67	16.00	21.00
2001149	171.1		79.10	250.81	5.50	4.00	8.50	18.00
2001150	100.47		497.47	597.95	6.00	4.67	7.33	18.00
2001151	594.43	159.64		754.06	9.67	13.33	0.00	23.00
2001156	89.70			89.70	8.00	0.00	1.00	9.00
2001158	472.31	109.73		582.04	1.39	9.61	0.00	11.00
2001164	402.25	735.22	213.67	1351.14	5.27	12.07	0.67	18.00
2001170	576.57			576.57	21.00	0.00	0.00	21.00
2001171	286.48	6.10		292.57	8.38	4.25	0.38	13.00
2001172	512.10	117.46		629.56	10.00	8.50	3.50	22.00
2001173	1303.88			1303.88	25.50	0.00	0.50	26.00
2001174	1017.94			1017.90	26.00	0.00	0.00	26.00
2001179	46.56	776.19		822.75	2.00	19.00	0.00	21.00
2001180	116.40	1262.79		1379.19	5.00	19.00	0.00	24.00

313. The number of employees who have earned more than Rs. 50 per day in complex operations is

(a) 4

(b) 3

(c) 5

(d) 6

314. The number of employees who have earned more than Rs. 600 and having more than 80% attendance (there are 25 regular working days in June 2002; some might be coming on overtime too) is

(a) 4

(b) 5

(c) 6

(d) 7

315. The employee number of the person who has earned the maximum earnings per day in medium operation is

(a) 2001180

(b) 2001164

(c) 2001172

(d) 2001179

316. Among the employees who were engaged in complex and medium operations, the number of employees whose average earning per day in complex operations is more than average earning per day in medium operations is

(a) 2 (b) 3

(c) 5 (d) 7

Directions for Questions 317 to 324: *Answer the questions based on the table given below:*

The following table shows the revenue and expenses in millions of Euros (European currency) associated with REPSOL YPF company's oil and gas producing activities in operations in different parts of the world for 1998-2000.

REPSOL YPF'S Operations of Oil and Gas Producing Activities

S. No.	Item	Year	Total World	Spain	North Africa & Middle East	Argentina	Rest of Latin America	Far East	North Sea	Rest of the World
1	Revenue	1998	916	70	366	281	34	82	78	5
		1999	3374	55	666	2006	115	301	140	91
		2000	8328	394	1290	5539	482	603	0	20
2	Expenses	1998	668	39	255	187	57	63	52	15
		1999	1999	48	325	1168	131	204	65	58
		2000	3709	43	530	2540	252	311	0	33
3	Income before Taxes & Charges (Revenue-Expenses) =[(1)-(2)]	1998	248	31	111	94	–23	19	26	–10
		1999	1375	7	341	838	–16	97	75	33
		2000	4619	351	760	2999	230	292	0	–13
4	Taxes & Charges	1998	152	6	104	33	–3	9	6	–3
		1999	561	3	169	338	–6	39	21	–3
		2000	1845	126	404	1150	61	103	0	1
5	Net Income Taxes Charges [=(3)-(4)]	1998	96	25	7	61	–20	10	20	–7
		1999	814	4	172	500	–10	58	54	36
		2000	2774	225	356	1849	169	189	0	–14

317. How many operations (Spain, North Africa and Middle East,..) of the company accounted for less than 5% of the total revenue earned in 1999?

(a) 2 (b) 3

(c) 4 (d) None of these

318. How many operations (Spain, North Africa and Middle East…) of the company witnessed more than 200% revenue from 1999 to 2000?

(a) 1 (b) 2

(c) 3 (d) None of these

319. How many operations registered a sustained yearly increase in income before taxes and charges from 1998 to 2000?

(a) 3

(b) 4

(c) 5

(d) None of these

320. Ignoring the loss making operations of the company in 1998, for how many operations was the percentage increase in net income before taxes and charges higher than the average from 1998 to 1999?

(a) 0

(b) 1

(c) 2

(d) None of these

321. If profitability is defined as the ratio of net income after taxes and charges to expense, which of the following statements is true?

(a) The Far East operations witnessed its highest profitability in 1998.

(b) The North Sea operations increased its profitability from 1998 to 1999.

(c) The operations in Argentina witnessed a decrease in profitability from 1998 to 1999.

(d) Both 2 and 3 are true.

322. In 2000, which among the following countries had the best profitability?

(a) North Africa and Middle East

(b) Spain

(c) Rest of Latin America

(d) Far East

323. If efficiency is defined as the ratio of revenue to expenses, which operation was the least efficient in 2000?

(a) Spain (b) Argentina

(c) Far East (d) None of these

324. Of the following statements, which one is not true?

(a) The operations in Spain had the best efficiency in 2000.

(b) The Far East operations witnessed an efficiency improvement from 1999 to 2000.

(c) The North Sea operations witnessed an efficiency improvement from 1998 to 1999.

(d) In 1998, the operations in Rest of Latin America were the least efficient.

Directions for Questions 325 and 326: Answer the questions based on the pie charts given below.

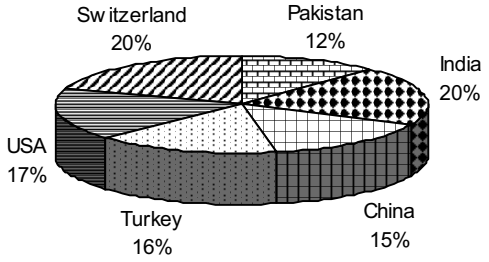


Chart 1

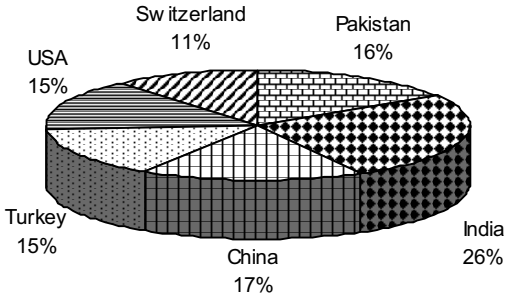


Chart 2

Chart 1 shows the distribution by value of top 6 suppliers of MFA Textiles in 1995. Chart 2 shows the distribution by quantity of top 6 suppliers of MFA Textiles in 1995. The total value is 5760 million Euro (European currency). The total quantity is 1.055 million tonnes.

325. The country which has the highest average price is

(a) USA (b) Switzerland

(c) Turkey (d) India

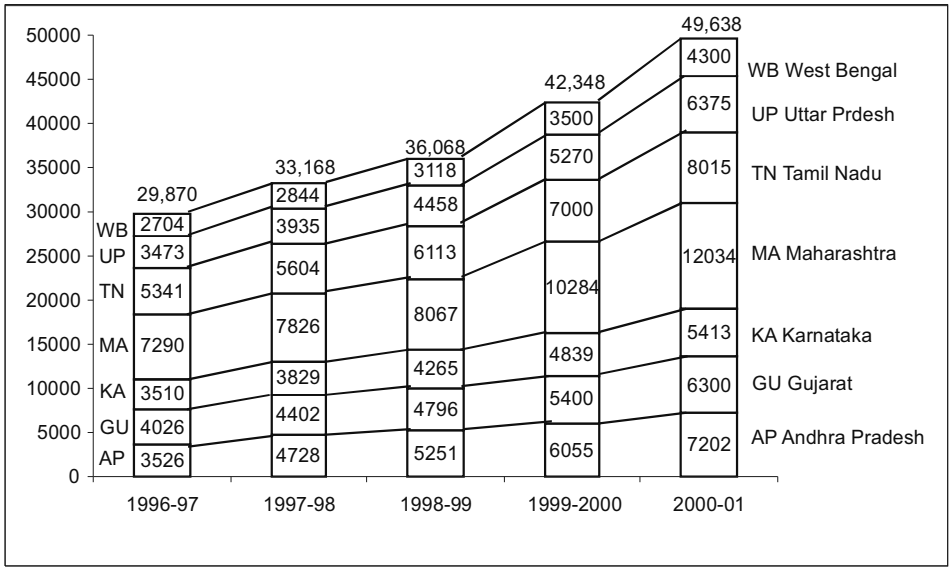
326. The average price in Euro per kilogram for Turkey is roughly

(a) 6.20 (b) 5.60

(c) 4.20 (d) 4.80

Directions for Questions 327 to 332: *Answer the questions based on the chart given below.*

The chart given below indicates the annual sales tax revenue collections (in rupees in crores) of seven states from 1997 to 2001. The values given at the top of each bar represents the total collections in that year.



327. If for each year, the states are ranked in terms of the descending order of sales tax collections, how many states do not change the ranking more than once over the five years?

(a) 1 (b) 5

(c) 3 (d) 4

328. Which of the following states has changed its relative ranking most number of times when you rank the states in terms of the descending volume of sales tax collections each year?

(a) Andhra Pradesh (b) Uttar Pradesh

(c) Karnataka (d) Tamil Nadu

329. The percentage share of sales tax revenue of which state has increased from 1997 to 2001?

(a) Tamil Nadu (b) Karnataka

(c) Gujarat (d) Andhra Pradesh

330. Which pair of successive years shows the maximum growth rate of tax revenue in Maharashtra?

(a) 1997 to 1998 (b) 1998 to 1999

(c) 1999 to 2000 (d) 2000 to 2001

331. Identify the state whose tax revenue increased exactly by the same amount in two successive pair of years?

(a) Karnataka (b) West Bengal

(c) Uttar Pradesh (d) Tamil Nadu

332. Which state below has been maintaining a constant rank over the years in terms of its contribution to total tax collections?

(a) Andhra Pradesh

(b) Karnataka

(c) Tamil Nadu

(d) Uttar Pradesh

2003 (R)

Directions for Questions 333 to 335: *Answer the questions on the basis of the following information.*

In a Decathlon, the events are 100 m, 400 m, 100 m hurdles, 1,500 m, High jump, Pole vault, Long jump, Discus, Shot put and Javelin. The performance in the first four of these events is consolidated into Score-1, the next three into Score-2, and the last three into Score-3. Each such consolidation is obtained by giving appropriate positive weights to individual events. The final score is simply the total of these three scores. The athletes with the highest, second highest and the third highest final scores receive the gold, silver, and the bronze medals respectively. The table below gives the scores and performance of 19 top athletes in this event.

Name	Country	Final Score	Score-1	Score-2	Score-3	100m	High jump	Pole-vault
Eduard Hämäläinen	BLS	8802	491	5322	2989	10.74	2.08	4.8
Michael Smith	CAN	8855	174	5274	3407	11.23	1.97	4.9
Tomas Dvorak	CZE	8796	499	5169	3128	10.63	1.91	4.7
Uwe Freimuth	DDR	8799	441	5491	3124	11.06	1.97	4.8
Torsten Voss	DDR	8880	521	5234	2868	10.69	2.1	5.1
Erki Nool	EST	8768	408	5553	2808	10.71	1.99	5.4
Christian Plaziat	FRA	8775	563	5430	2781	10.72	2.1	5
Jürgen Hingsen	FRG	8792	451	5223	3033	10.95	2	4.9
Siegfried Wentz	FRG	8856	470	5250	3137	10.85	2.05	4.8
Guido Kratschmer	FRG	8861	575	5308	3064	10.58	2	4.6
Daley Thompson	GBR		582		3003	10.55	2.11	4.6
Frank Busemann	GER	8905	568	5392	2945	10.6	2.04	4.8
Alexandr Apaichev	SOV	8803	492	5370	3115	10.92	1.95	4.8
Grigory Degtyarov	SOV	8823	339	5196	3114	11.05	2.08	4.9
Robert Zmelik	TCH	8832	494	5455	2883	10.78	2.06	5.1
Dave Johnson	USA	8811	366	5370	3114	10.78	2.1	5
Steve Fritz	USA	8827	427	5163	3119	10.75	2.04	5
Bruce Jenner	USA	8846	483	5280	3200	10.94	2.03	4.8
Dan O'Brien	USA	8897	408	5331	3120	10.36	2.09	4.8

333. The athletes from FRG and USA decided to run a 4 × 100 m relay race for their respective countries with the country having three athletes borrowing the athlete from CZE. Assume that all the athletes ran their stretch of the relay race at the same speed as in Decathlon event. How much more time did the FRG relay team take as compared to the USA team?

(a) 0.18 (b) 0.28

(c) 0.78 (d) 0.00

334. What is the least that Daley Thompson must get in Score-2 that ensures him a bronze medal?

(a) 5309 (b) 5296

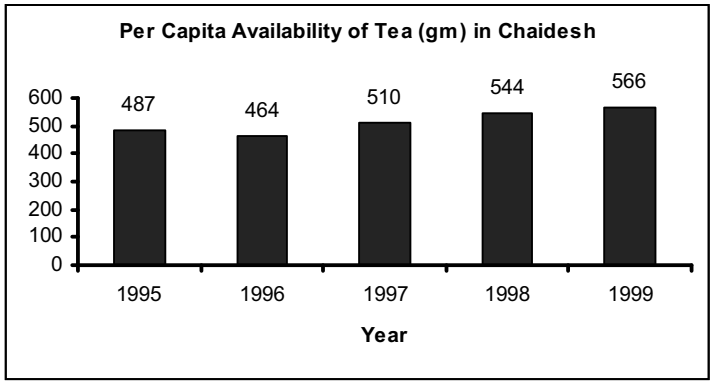
(c) 5271 (d) 5270

335. At least how many competitors (excluding Daley Thompson) must Michael Smith have out-jumped in the long jump event?

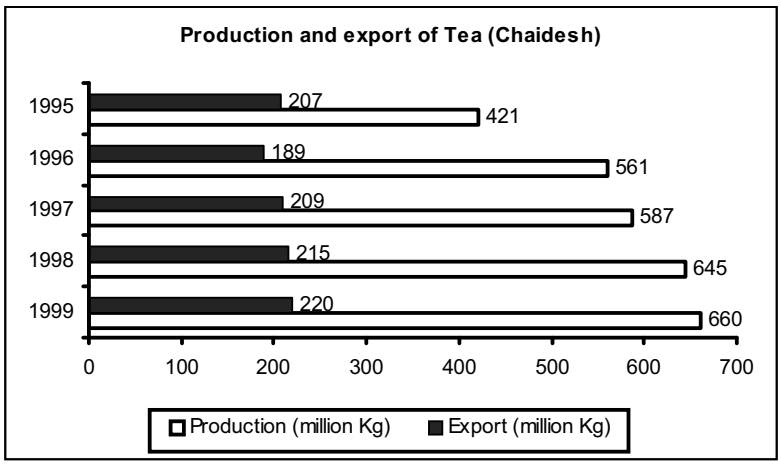
(a) One (b) Two

(c) Three (d) Four

Directions for Questions 336 to 338: *Answer the questions on the basis of the following charts.*



(**Note:** Availability is defined as production less export.)



336. In which year during the period 1996-1999 was Chaidesh's export of tea, as a proportion of tea produced, the highest?

(a) 1996 (b) 1997

(c) 1998 (d) 1999

337. In which of the following years was the population of Chaidesh the lowest?

(a) 1995 (b) 1996

(c) 1997 (d) 1999

338. The area under tea cultivation continuously decreased in all four years from 1996 to 1999, by 10%, 7%, 4%, and 1%, respectively. In which year was tea productivity (production per unit of area) the highest?

(a) 1999

(b) 1998

(c) 1997

(d) 1996

Directions for Questions 339 to 342: *Answer the questions on the basis of the following information.*

The following is the wholesale price index (WPI) of a select list of items with the base year of 1993-94. In other words, all the item prices are made 100 in that year (1993-94). Prices in all other years for an item are measured with respect to its price in the base year. For instance, the price of cement went up by 1% in 1994-95 as compared to 1993-94. Similarly, the price of power went up by 3% in 1996-97 as compared to 1993-94.

	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03
All items	100	102.0	102.5	104.0	103.0	105.0	106.0	108.0	107.0	106.0
Cement	100	101.0	100.5	103.0	102.5	103.5	103.1	103.8	103.7	104.0
Limestone	100	102.0	102.5	102.75	102.25	103.0	104.0	105.0	104.5	105.0
Power	100	101.5	102.5	103.0	103.5	104.0	106.0	107.0	107.5	108.0
Steel	100	101.5	101.0	103.5	104.0	104.25	105.0	105.5	106.0	105.5
Timber	100	100.5	101.5	102.0	102.5	102.0	103.0	103.5	104.0	104.5
Wages	100	101.5	103.0	103.5	104.0	104.25	104.0	104.75	104.9	105.3

339. Let us suppose that one bag of cement (50 kg) consumes 100 kg of limestone and 10 units of power. The only other cost item in producing cement is in the form of wages. During 1993-94, limestone, power and wages contributed, respectively, 20%, 25% and 15% to the cement price per bag. The average operating profit (per cent of price per cement bag) earned by a cement manufacturer during 2002-03 is closest to

(a) 40%

(b) 39.5%

(c) 38.5%

(d) 37.5%

340. Steel manufacturing requires the use of iron ore, power and manpower. The cost of iron ore has followed the All Items index. During 1993-94 power accounted for 30% of the selling price of steel, iron ore for 25%, and wages for 10% of the selling price of steel. Assuming the cost and price data for cement as given in the previous question, the operating profit (per cent of selling price) of an average steel manufacturer in 2002-03

(a) is more than that of a cement manufacturer.

(b) is less than that of a cement manufacturer.

(c) is the same as that of a cement manufacturer.

(d) Cannot be determined.

341. Which item experienced continuous price rise during the ten-year period?

(a) Power

(b) Cement

(c) Wages

(d) Limestone

342. Which item(s) experienced only one decline in price during the ten-year period?

(a) Steel and limestone

(b) Steel and timber

(c) Timber

(d) Timber and wages

Directions for Questions 343 to 346: *Answer the questions on the basis of the following table.*

Below is a table that lists countries region-wise. Each region-wise list is sorted, first by birth rate and then alphabetically by name of country. We now wish to merge the region-wise list into one consolidated list and provide overall rankings to each country based first on birth rate and then on death rate. Thus, if some countries have the same birth rate, then the country with a lower death rate will be ranked higher. Further, countries having identical birth and death rates will get the same rank. For example, if two countries are tied for the third position, then both will be given rank 3, while the next country (in the ordered list) will be ranked 5.

Rank	Country	Birth Rate	Death Rate	Region
1	South Africa	36	12	Africa
2	Egypt	39	13	Africa
3	Cameroon	42	22	Africa
4	Mozambique	45	18	Africa
5	Zaire	45	18	Africa
6	Ghana	46	14	Africa
7	Angola	47	23	Africa
8	Madagascar	47	22	Africa
9	Morocco	47	16	Africa
10	Tanzania	47	17	Africa
11	Ethiopia	48	23	Africa
12	Ivory coast	48	23	Africa
13	Rhodesia	48	14	Africa
14	Uganda	48	17	Africa
15	Nigeria	49	22	Africa
16	Saudi Arabia	49	19	Africa
17	Sudan	49	17	Africa
18	Algeria	50	16	Africa
19	Kenya	50	14	Africa
20	Upper Volta	50	28	Africa

Rank	Country	Birth Rate	Death Rate	Region
1	Germany (FRG)	10	12	Europe
2	Austria	12	13	Europe
3	Belgium	12	12	Europe
4	Germany (DRG)	12	14	Europe
5	Sweden	12	11	Europe
6	Switzerland	12	9	Europe
7	U.K.	12	12	Europe
8	Netherlands	13	8	Europe
9	France	14	11	Europe
10	Italy	14	10	Europe
11	Greece	16	9	Europe
12	Bulgaria	17	10	Europe
13	Hungary	18	12	Europe
14	Spain	18	8	Europe
15	USSR	18	9	Europe
16	Yugoslavia	18	8	Europe
17	Czech. Rep.	19	11	Europe
18	Portugal	19	10	Europe
19	Romania	19	10	Europe
20	Poland	20	9	Europe

Rank	Country	Birth Rate	Death Rate	Region
1	Japan	16	6	Asia
2	Korea (ROK)	26	6	Asia
3	Sri Lanka	26	9	Asia
4	Taiwan	26	5	Asia
5	Malaysia	30	6	Asia
6	China	31	11	Asia
7	Thailand	34	10	Asia
8	Turkey	34	12	Asia
9	India	36	15	Asia
10	Burma	38	15	Asia
11	Iran	42	12	Asia
12	Vietnam	42	17	Asia
13	Korea (DPRK)	43	12	Asia
14	Pakistan	44	14	Asia
15	Nepal	46	20	Asia
16	Bangladesh	47	19	Asia
17	Syria	47	14	Asia
18	Iraq	48	14	Asia
19	Afghanistan	52	30	Asia

Rank	Country	Birth Rate	Death Rate	Region
1	U.S.A.	15	9	N. America
2	Canada	16	7	N. America
3	Cuba	20	6	N. America
4	Mexico	40	7	N. America
1	Australia	16	8	Pacific
2	Philippines	34	10	Pacific
3	Indonesia	38	16	Pacific
1	Argentina	22	10	S. America
2	Chile	22	7	S. America
3	Colombia	34	10	S. America
4	Brazil	36	10	S. America
5	Venezuela	36	6	S. America
6	Guatemala	40	14	S. America
7	Peru	40	13	S. America
8	Ecuador	42	11	S. America

343. In the consolidated list, what would be the overall rank of the Philippines?

(a) 32 (b) 33

(c) 34 (d) 35

344. In the consolidated list, how many countries would rank below Spain and above Taiwan?

(a) 9 (b) 8

(c) 7 (d) 6

345. In the consolidated list, which country ranks 37th?

(a) South Africa (b) Brazil

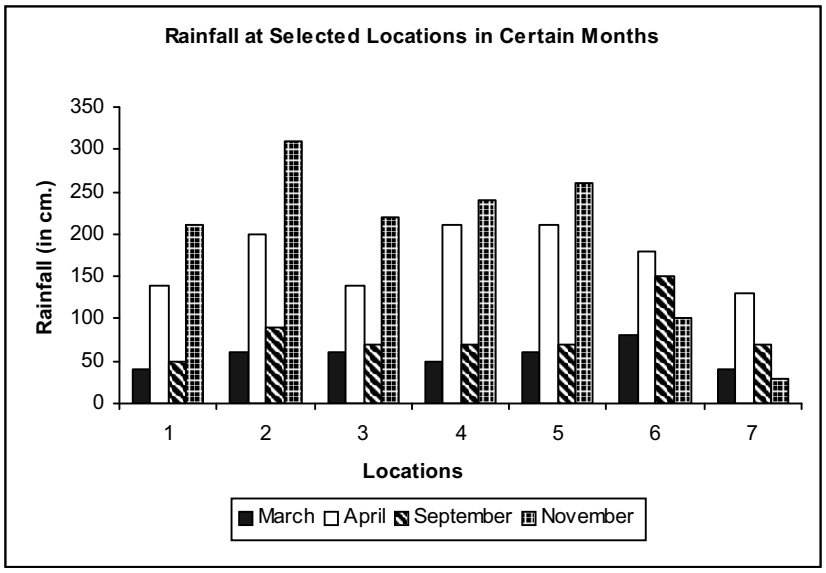
(c) Turkey (d) Venezuela

346. In the consolidated list, how many countries in Asia will rank lower than every country in South America, but higher than at least one country in Africa?

(a) 8 (b) 7

(c) 6 (d) 5

Directions for Questions 347 and 348: Answer the questions on the basis of the data presented in the figure below.



347. Which of the following statements is correct?

(a) November rainfall exceeds 100 cm in each location.

(b) September rainfall exceeds 50 cm in each location.

(c) March rainfall is lower than September rainfall in each location.

(d) None of these.

348. Locations 6 and 7 differ from all the rest because only in these two locations,

(a) April rainfall exceeds March rainfall.

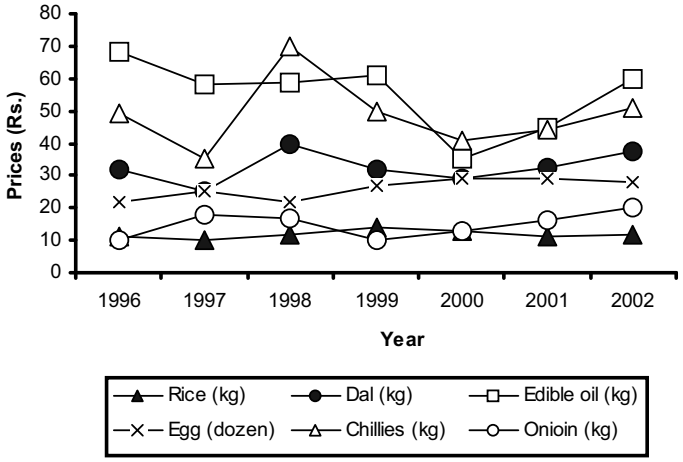
(b) Peak rainfall occurs in April.

(c) November rainfall is lower than March rainfall.

(d) April rainfall is less than 200 cm.

Directions for Questions 349 to 351: *Answer the questions on the basis of the data presented in the figure below.*

Mid-year Prices of Essential Commodities



349. During 1996-2002, the number of commodities that exhibited a net overall increase and net overall decrease, respectively, were

(a) 3 and 3 (b) 2 and 4

(c) 4 and 2 (d) 5 and 1

350. The number of commodities that experienced a price decline for two or more consecutive years is

(a) 2 (b) 3

(c) 4 (d) 5

351. For which commodities did a price increase immediately follow a price decline only once in this period?

(a) Rice, edible oil and dal

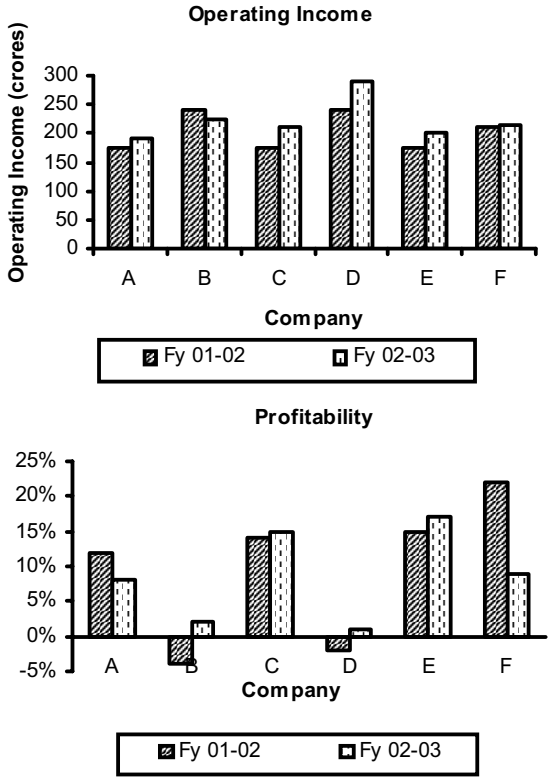
(b) Egg and dal

(c) Onion only

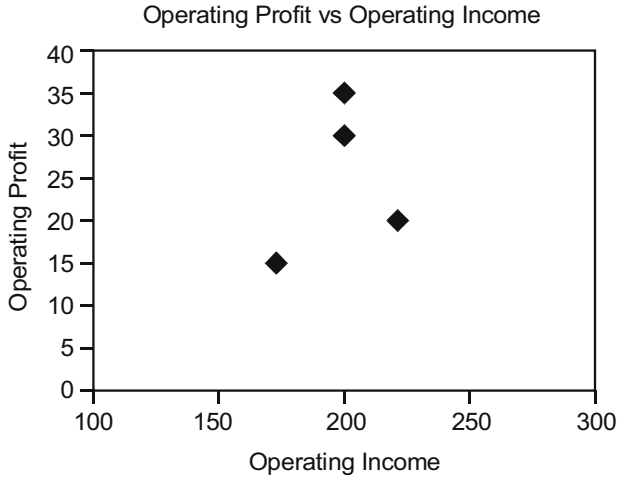
(d) Egg and onion

Directions for Questions 352 to 355: *Answer the questions on the basis of the following charts.*

The profitability of a company is defined as the ratio of its operating profit to its operating income, typically expressed in percentage. The following two charts show the operating income as well as the profitability of six companies in the financial years (F.Ys.) 2001-02 and 2002-03.



The operating profits of four of these companies are plotted against their respective operating income figures for the F.Y. 2002-03, in the third chart given below.



352. Which of the following statements is NOT true?

(a) The company with the third lowest profitability in F.Y. 2001-02 has the lowest operating income in F.Y. 2002-03.

(b) The company with the highest operating income in the two financial years combined has the lowest operating profit in F.Y. 2002-03.

(c) Companies with a higher operating income in F.Y. 2001-02 than in F.Y. 2002-03 have higher profitability in F.Y 2002-03 than in F.Y. 2001-02.

(d) Comanies with profitability between 10% and 20% in F.Y. 2001-02 also have operating incomes between 150 crore and 200 crore in F.Y. 2002-03.

353. Which company recorded the highest operating profit in F.Y. 2002-03?

(a) A (b) C

(c) E (d) F

354. What is the approximate average operating profit, in F.Y 2001-02, of the two companies excluded from the third chart?

(a) –7.5 crore (b) 3.5 crore

(c) 25 crore (d) Cannot be determined

355. The average operating profit in F.Y. 2002-03 of companies with profitability exceeding 10% in F.Y. 2002-03, is approximately

(a) 17.5 crore (b) 25 crore

(c) 27.5 crore (d) 32.5 crore

Directions for Questions 356 to 358: *Answer the questions on the basis of the table given below:*

Sex Ratio (Number of females per 1,000 males) of Selected States in India : 1901-2001

	1901	1911	1921	1931	1941	1951	1961	1971	1981	1991	2001
AP	985	992	993	987	980	986	981	977	975	972	978
Assam	919	915	896	874	875	868	869	896	910	923	932
Bihar	1061	1051	1020	995	1002	1000	1005	957	948	907	921
Goa	1091	1108	1120	1088	1084	1128	1066	981	975	967	960
Gujarat	954	946	944	945	941	952	940	934	942	934	921
Haryana	867	835	844	844	869	871	868	867	870	865	861
HP	884	889	890	897	890	912	938	958	973	976	970
J&K	882	876	870	865	869	873	878	878	892	896	900
Karnataka	983	981	969	965	960	966	959	957	963	960	964
Kerala	1004	1008	1011	1022	1027	1028	1022	1016	1032	1036	1058
MP	972	967	949	947	946	945	932	920	921	912	920
Maharashtra	978	966	950	947	949	941	936	930	937	934	922
Orissa	1037	1056	1086	1067	1053	1022	1001	988	981	971	972
Punjab	832	780	799	815	836	844	854	865	879	882	874
Rajasthan	905	908	896	907	906	921	908	911	919	910	922
TN	1044	1042	1029	1027	1012	1007	992	978	977	974	986
UP	938	916	908	903	907	998	907	876	882	876	898
WB	945	925	905	890	852	865	878	891	911	917	934
India	**972**	**964**	**955**	**950**	**945**	**946**	**941**	**930**	**934**	**927**	**933**

356. The two states which achieved the largest increases in sex ratio over the period 1901-2001 are

(a) Punjab and HP

(b) HP and Kerala

(c) Assam and J & K

(d) Kerala and J & K

357. Among the states which have a sex ratio exceeding 1000 in 1901, the sharpest decline over the period 1901-2001 was registered in the state of

(a) Goa (b) TN

(c) Bihar (d) Orissa

358. Each of the following statements pertains to the **number** of states with females outnumbering males in a given census year. Which of these statements is NOT correct?

(a) This number never exceeded 5 in any census year.

(b) This number registered its sharpest decline in 1971.

(c) The number of consecutive censuses in which this number remained unchanged never exceeded 3.

(d) Prior to the 1971 census, this number was never less than 4.

2003 (L)

Directions for Questions 359 to 361: *In each question, there are two statements: A and B, either of which can be true or false on the basis of the information given below.*

A research agency collected the following data regarding the admission process of a reputed management school in India.

Year	Gender	Number bought application forms	Number appeared for written test	Number called for interviews	Number selected for the course
2002	Male	61205	59981	684	171
	Female	19236	15389	138	48
2003	Male	63298	60133	637	115
	Female	45292	40763	399	84

Choose (a) if only A is true

Choose (b) if only B is true

Choose (c) if both A and B are true

Choose (d) if neither A nor B is true

359. Statement A: The success rate of moving from written test to interview stage for males was worse than for females in 2003.

Statement B: The success rate of moving from written test to interview stage for females was better in 2002 than in 2003.

360. Statement A: In 2002, the number of females selected for the course as a proportion of the number of females who bought application forms, was higher than the corresponding proportion for males.

Statement B: In 2002, among those called for interview, males had a greater success rate than females.

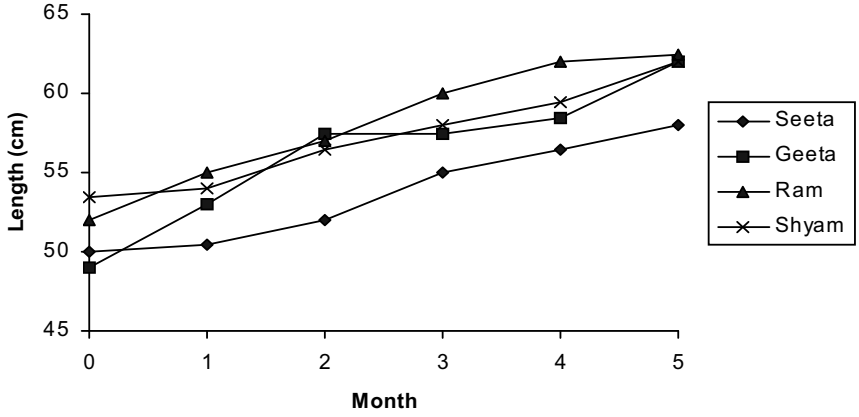
361. Statement A: The percentage of absentees in the written test among females decreased from 2002 to 2003.

Statement B: The percentage of absentees in the written test among males was larger than among females in 2003.

Directions for Questions 362 to 365: *Answer the questions on the basis of the information given below.*

The length of an infant is one of the measures of his/her development in the early stages of his/her life.

The figure below shows the growth chart of four infants in the first five months of life.



362. After which month did Seeta's rate of growth start to decline?

(a) Second month

(b) Third month

(c) Fourth month

(d) Never

363. Who grew at the fastest rate in the first two months of life?

(a) Geeta

(b) Seeta

(c) Ram

(d) Shyam

364. The rate of growth during the third month was the lowest for

(a) Geeta

(b) Seeta

(c) Ram

(d) Shyam

365. Among the four infants, who grew the least in the first five months of life?

(a) Geeta

(b) Seeta

(c) Ram

(d) Shyam

Directions for Questions 366 to 368: Answer the questions on the basis of the information given below.

The table below provides certain demographic details of 30 respondents who were part of a survey. The demographic characteristics are: gender, number of children, and age of respondents. The first number in each cell is the number of respondents in that group. The minimum and maximum age of respondents in each group is given in brackets. For example, there are five female respondents with no children and among these five, the youngest is 34 years old, while the oldest is 49.

No. of children	Male	Female	Total
0	1 (38, 38)	5 (34, 49)	6
1	1 (32, 32)	8 (35, 57)	9
2	8 (21, 65)	3 (37, 63)	11
3	2 (32, 33)	2 (27, 40)	4
Total	12	18	30

366. The percentage of respondents aged less than 40 years is at least

(a) 10%

(b) 16.67%

(c) 20.0%

(d) 30%

367. Given the information above, the percentage of respondents older than 35 can be at most

(a) 30%

(b) 73.33%

(c) 76.67%

(d) 90%

368. The percentage of respondents that fall into the 35 to 40 years age group (both inclusive) is at least

(a) 6.67%

(b) 10%

(c) 13.33%

(d) 26.67%

Directions for Questions 369 to 371: *Answer the questions on the basis of the information given below.*

Spam that enters our electronic mailboxes can be classified under several spam heads. The following table shows the distribution of such spam worldwide over time. The total number of spam emails received during December 2002 was larger than the number received in June 2003. The total number of spam emails received during September 2002 was larger than the number received in March 2003. The figures in the table represent the percentage of all spam emails received during that period, falling into those respective categories.

Category	Sep-02	Dec-02	Mar-03	Jun-03
Adult	38	33	19	17
Financial	25	30	37	45
Health	11	19	5	18
Internet	5	3	10	6
Products	3	7	10	11
Scams	5	6	11	2
Others	13	2	8	1

369. In which category was the percentage of spam emails increasing but at a decreasing rate?

(a) Financial

(b) Scams

(c) Products

(d) None of the above

370. In the health category, the number of spam emails received in December 2002 as compared to June 2003.

(a) was larger

(b) was smaller

(c) was equal

(d) cannot be determined

371. In the financial category, the number of spam emails received in September 2002 as compared to March 2003.

(a) was larger

(b) was smaller

(c) was equal

(d) cannot be determined

Directions for Questions 372 to 374: *Answer the questions on the basis of the information given below.*

One of the functions of the Reserve Bank of India is to mobilize funds for the Government of India by issuing securities. The following table shows details of funds mobilized during the period July 2002 - July 2003. Notice that on each date there were two rounds of issues, each with a different maturity.

Date of issue	Notified amount	Maturity	Competitive bids received	Non-competitive bids received	Competitive bids accepted		Non-competitive bids accepted		Total amount mobilized	Coupon rate %	Implicit yield %
	Rs. Crore	Years	No.	No.	No.	Value	No.	Value	Rs. Crore		
17-Jul-02	40	15	229	23	66	15.21	23	0.37	16	8.07	7.80
17-Jul-02	30	10	145	12	90	29.88	12	0.12	30	6.72	6.72
5-Aug-02	50	9	324	13	105	49.68	13	0.33	50	9.39	7.24
5-Aug-02	20	24	163	9	34	19.81	9	0.19	20	10.18	7.93
28-Aug-02	50	15	260	26	157	48.92	26	1.08	50	7.46	7.46
28-Aug-02	20	30	119	15	67	19.61	15	0.39	20	7.95	7.95
11-Sep-02	40	15	261	22	152	38.93	22	1.07	40	7.46	7.44
11-Sep-02	30	20	131	20	98	29.44	20	0.56	30	8.35	7.70
9-Oct-02	40	11	361	26	119	39.22	26	0.78	40	7.27	7.14
9-Oct-02	30	30	91	15	39	29.52	15	0.48	30	7.95	7.89
7-Nov-02	40	17	245	14	20	39.71	14	0.29	40	10.03	7.26
7-Nov-02	30	24	166	11	49	29.70	11	0.31	30	10.18	7.48
9-Apr-03	40	20	245	25	65	39.53	25	1.47	40	6.30	6.30
9-Apr-03	50	11	236	24	201	49.40	24	0.60	50	7.37	5.98
23-Apr-03	50	15	319	26	134	48.98	26	1.02	50	6.25	6.10
23-Apr-03	20	29	131	19	9	19.39	19	0.61	20	7.95	6.33
5-May-03	60	10	314	14	98	59.69	14	0.31	60	7.27	5.97
5-May-03	30	20	143	14	118	29.58	14	0.42	30	6.30	6.35
4-Jun-03	30	25	187	19	15	28.50	19	1.50	30	6.13	6.13
4-Jun-03	60	9	378	21	151	59.09	21	0.91	60	6.85	5.76
2-Jul-03	50	11	298	20	116	49.05	20	0.95	50	7.37	5.76
2-Jul-03	30	25	114	20	45	28.64	20	1.36	30	6.31	6.10
16-Jul-03	60	17	371	29	115	57.00	29	3.10	60	6.35	5.97
16-Jul-03	30	29	134	22	12	29.32	22	0.68	30	7.95	6.20
Total	930								906		

372. How many times was the issue of securities under-subscribed, i.e., how often did the total amount mobilized fall short of the amount notified?

(a) 0 (b) 1

(c) 2 (d) 3

373. Which of the following is true?

(a) The second round issues have a higher maturity than the first round for all dates.

(b) The second round issue of any date has a lower maturity only when the first round notified amount exceeds that of the second round.

(c) On at least one occasion, the second round issue having lower maturity received a higher number of competitive bids.

(d) None of the above three statements is true.

374. Which of the following statements is NOT true?

(a) Competitive bids received always exceed non-competitive bids received.

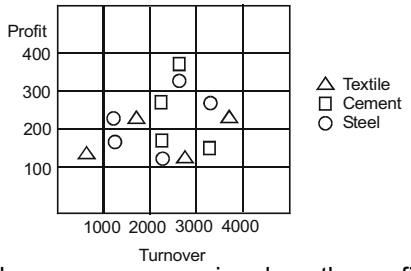
(b) The number of competitive bids accepted does not always exceed the number of non-competitive bids accepted.

(c) The value of competitive bids accepted on any particular date is never higher for higher maturity.

(d) The value of non-competitive bids accepted in the first round is always greater than that in the second round.

Directions for Questions 375 to 377: *Answer the questions on the basis of the information given below.*

Each point in the graph below shows the profit and turnover data for a company. Each company belongs to one of the three industries: textile, cement and steel.



375. For how many companies does the profit exceed 10% of turnover?

(a) 8 (b) 7

(c) 6 (d) 5

376. For how many steel companies with a turnover of more than 2000 is the profit less than 300?

(a) 0 (b) 1

(c) 2 (d) 7

377. An investor wants to buy stock of only steel or cement companies with a turnover more than 1000 and profit exceeding 10% of turnover. How many choices are available to the investor?

(a) 4 (b) 5

(c) 6 (d) 7

Directions for Questions 378 to 380: Answer the questions on the basis of the information given below.

Details of the top 20 MBA schools in the US as ranked by US News and World Report, 1997 are given below.

School	Overall ranking	Ranking by Academics	Ranking by recruiters	Ranking by placement	Median starting salary	% employed	Annual tuition fee
Stanford University	1	1	3	1	$82,000	98.9	$23,100
Harvard University	2	1	2	4	$80,000	96.4	$23,840
University of Pennsylvania	3	1	4	2	$79,000	100.0	$24,956
Massachusetts Institute of Technology	4	1	4	3	$78,000	98.8	$23,900
University of Chicago	5	1	8	10	$65,000	98.4	$23,930
Northwestern University	6	1	1	11	$70,000	93.6	$23,025
Columbia University	7	9	10	5	$83,000	96.2	$23,830
Dartmouth College	8	12	11	6	$70,000	98.3	$23,700
Duke Univrsity	9	9	7	8	$67,500	98.5	$24,380
University of California—Berkeley	10	7	12	12	$70,000	93.7	$18,788
University of Virginia	11	12	9	9	$66,000	98.1	$19,627
University of Michigan—Ann Arbor	12	7	6	14	$65,000	99.1	$23,178
New York University	13	16	19	7	$70,583	97	$23,554
Carnegie Mellon University	14	12	18	13	$67,200	96.6	$22,200
Yale University	15	18	17	22	$65,000	91.5	$23,220
Univ. of North Carolina—Chapel Hill	16	16	16	16	$60,000	96.8	$14,333
University of California—Los Angeles	17	9	13	38	$65,000	82.2	$19,431
University of Texas—Austin	18	18	13	24	$60,000	97.3	$11,614
Indiana University—Bloomington	19	18	20	17	$61,500	95.2	$15,613
Cornell University	20	12	15	36	$64,000	85.1	$23,151

378. Madhu has received admission in all schools listed above. She wishes to select the highest overall ranked school whose a) annual tuition fee does not exceed $23,000 and b) median starting salary is at least $70,000. Which school will she select?

(a) University of Virginia.

(b) University of Pennsylvania

(c) Northwestern University

(d) University of California - Berkeley

379. In terms of staring salary and tuition fee, how many schools are uniformly better (higher median starting salary AND lower tuition fee) than Dartmouth College?

(a) 1 (b) 2

(c) 3 (d) 4

380. How many schools in the list above have single digit rankings on at least 3 of the 4 parameters (overall ranking, ranking by academics, ranking by recruiters and ranking by placement)?

(a) 10 (b) 5

(c) 7 (d) 8

Directions for Questions 381 to 383: Answer the questions on the basis of the information given below.

Table A below provides data about ages of children in a school. For the age given in the first column, the second column gives the number of children not exceeding the age. For example, first entry indicates that there are 9 children aged 4 years or less. Tables B and C provide data on the heights and weights respectively of the same group of children in a similar format. Assuming that an older child is always taller and weighs more than a younger child, answer the following questions.

Table A	
Age (years)	Number
4	9
5	12
6	22
7	35
8	42
9	48
10	60
11	69
12	77
13	86
14	100

Table B	
Height (cm.)	Number
115	6
120	11
125	24
130	36
135	45
140	53
145	62
150	75
155	81
160	93
165	100

Table C	
Weight (kg.)	Number
30	8
32	13
34	17
36	28
38	33
40	46
42	54
44	67
46	79
48	91
50	100

381. What is the number of children of age 9 years of less whose height does not exceed 135 cm?

(a) 48 (b) 45

(c) 3 (d) Cannot be determined

382. How many children of age more than 10 years are taller than 150 cm and do not weigh more than 48 kg?

(a) 16 (b) 40

(c) 9 (d) Cannot be determined

383. Among the children older than 6 years but not exceeding 12 years, how many weigh more than 38 kg.?

(a) 34

(b) 52

(c) 44

(d) Cannot be determined

Directions for Questions 384 and 385: *Answer the questions on the basis of the information given below.*

An industry comprises four firms (A, B, C, and D). Financial details of these firms and of the industry as a whole for a particular year are given below. Profitability of a firm is defined as profit as a percentage of sales.

Figures in Rs.	A	B	C	D	Total
Sales	24568	25468	23752	15782	89570
Operating costs	17198	19101	16151	10258	62708
Interest costs	2457	2292	2850	1578	9177
Profit	4914	4075	4750	3946	17684

384. Which firm has the highest profitability?

(a) A

(b) B

(c) C

(d) D

385. If firm A acquires firm B, approximately what percentage of the total market (total sales) will they corner together?

(a) 55% (b) 45%

(c) 35% (d) 50%

2004

Directions for Questions 386 to 389: *Answer the questions on the basis of the information given below.*

The data points in the figure below represent monthly income and expenditure data of individual members of the Ahuja family (■), the Bose family (□), the Coomar family (○), and the Dubey family (●). For these questions, savings is defined as

Savings = Income – Expenditure

386. Which family has the lowest average income?

(a) Ahuja (b) Bose

(c) Coomar (d) Dubey

387. Which family has the highest average expenditure?

(a) Ahuja (b) Bose

(c) Coomar (d) Dubey

388. Which family has the lowest average savings?

(a) Ahuja (b) Bose

(c) Coomar (d) Dubey

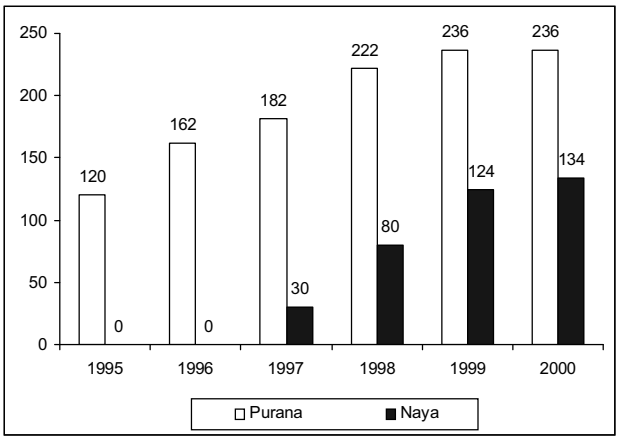
389. The highest amount of savings accrues to a member of which family?

(a) Ahuja (b) Bose

(c) Coomar (d) Dubey

Directions for Questions 390 to 393: *Answer the questions on the basis of the information given below.*

Purana and Naya are two brands of kitchen mixer-grinders available in the local market. Purana is an old brand that was introduced in 1990, while Naya was introduced in 1997. For both these brands, 20% of the mixer-grinders bought in a particular year are disposed off as junk exactly two years later. It is known that 10 Purana mixer-grinders were disposed off in 1997. The following figures show the number of Purana and Naya mixer-grinders in operation from 1995 to 2000, as at the end of the year.



390. How many Naya mixer-grinders were purchased in 1999?

(a) 44 (b) 50

(c) 55 (d) 64

391. How many Naya mixer-grinders were disposed off by the end of 2000?

(a) 10

(b) 16

(c) 22

(d) Cannot be determined from the data

392. How many Purana mixer-grinders were disposed off in 2000?

(a) 0 (b) 5

(c) 6

(d) Cannot be determined from the data

393. How many Purana mixer-grinders were purchased in 1999?

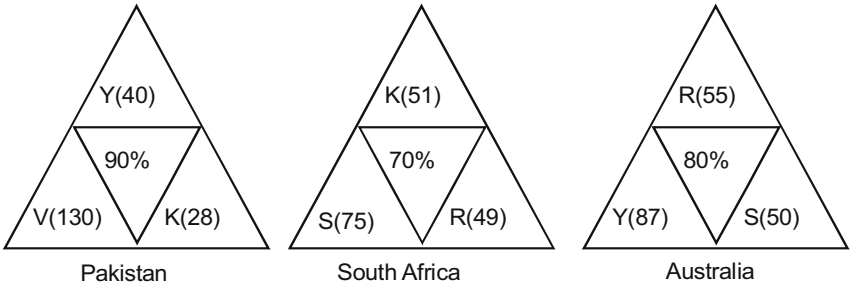
(a) 20 (b) 23

(c) 50

(d) Cannot be determined from the data

Directions for Questions 394 to 397: *Answer the questions on the basis of the information given below.*

Coach John sat with the score cards of Indian players from the 3 games in a one-day cricket tournament where the same set of players played for India and all the major batsmen got out. John summarized the batting performance through three diagrams, one for each game. In each diagram, the three outer triangles communicate the number of runs scored by the three top scores from India, where K, R, S, V, and Y represent Kaif, Rahul, Saurav, Virender, and Yuvraj respectively. The middle triangle in each diagram denotes the percentage of the total score that was scored by the top three Indian scorers in that game. No two players score the same number of runs in the same game. John also calculated two batting indices for each player based on his scores in the tournaments; the R-index of a batsman is the difference between his highest and lowest scores in the 3 games while the M-index is the middle number, if his scores are arranged in a non-increasing order.



394. For how many Indian players is it possible to calculate the exact M-index?

(a) 0

(b) 1

(c) 2

(d) More than 2

395. Among the players mentioned, who can have the lowest R-index from the tournament?

(a) Only Kaif, Rahul or Yuvraj

(b) Only Kaif or Rahul

(c) Only Kaif or Yuvraj

(d) Only Kaif

396. How many players among those listed definitely scored less than Yuvraj in the tournament?

(a) 0

(b) 1

(c) 2

(d) More than 2

397. Which of the players had the best M-index from the tournament?

(a) Rahul

(b) Saurav

(c) Virender

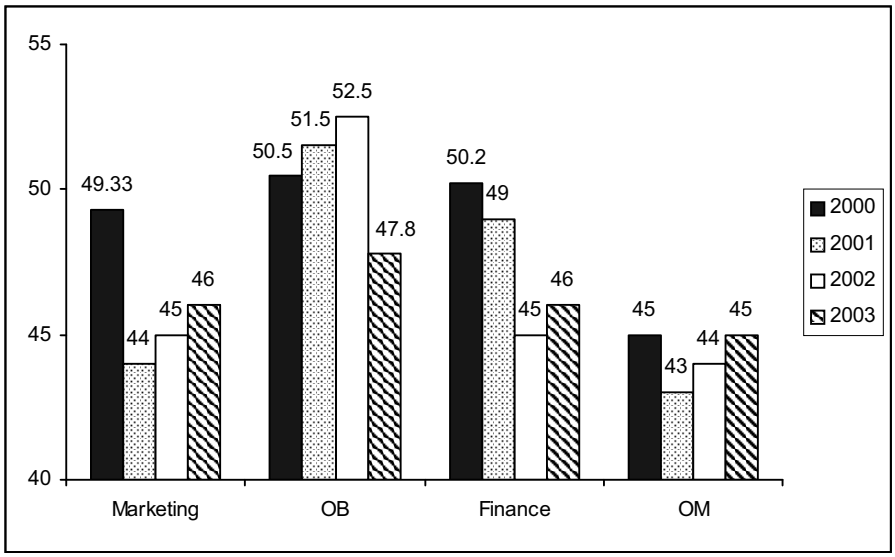
(d) Yuvraj

2005

Directions for Questions 398 to 401: *Answer the questions on the basis of the information given below:*

A management institute was established on January 1, 2000 with 3, 4, 5, and 6 faculty members in the Marketing, Organisational Behaviour (OB), Finance, and Operations Management (OM) areas respectively, to start with. No faculty member retired or joined the institute in the first three months of the year 2000. In the next four years, the institute recruited one faculty member in each of the four areas. All these new faculty members, who joined the institute subsequently over the years, were 25 years old

at the time of their joining the institute. All of them joined the institute on April 1. During these four years, one of the faculty members retired at the age of 60. The following diagram gives the area-wise average age (in terms of number of completed years) of faculty members as on April 1 of 2000, 2001, 2002, and 2003.



398. From which area did the faculty member retire?
(a) Finance (b) Marketing
(c) OB (d) OM

399. Professors Naresh and Devesh, two faculty members in the Marketing area, who have been with the Institute since its inception, share a birthday, which falls on 20th November. One was born in 1947 and the other one in 1950. On April 1 2005, what was the age of the third faculty member, who has been in the same area since inception?
(a) 47 (b) 50
(c) 51 (d) 52

400. In which year did the new faculty member join the Finance area?
(a) 2000
(b) 2001
(c) 2002
(d) 2003

401. What was the age of the new faculty member, who joined the OM area, as on April 1, 2003?
(a) 25 (b) 26
(c) 27 (d) 28

Directions for Questions 402 to 404: *Answer the questions on the basis of the information given below:*

The table below reports annual statistics related to rice production in select states of India for a particular year.

State	Total Area (in million hectares)	% of Area Under Rice Cultivation	Production (in million tons)	Population (in millions)
Himachal Pradesh	6	20	1.2	6
Kerala	4	60	4.8	32
Rajasthan	34	20	6.8	56
Bihar	10	60	12	83
Karnataka	19	50	19	53
Haryana	4	80	19.2	21
West Bengal	9	80	21.6	80
Gujarat	20	60	24	51
Punjab	5	80	24	24
Madhya Pradesh	31	40	24.8	60
Tamilnadu	13	70	27.3	62
Maharashtra	31	50	48	97
Uttar Pradesh	24	70	67.2	166
Andhra Pradesh	28	80	112	76

402. Which two states account for the highest productivity of rice (tons produced per hectare of rice cultivation)?

(a) Haryana and Punjab

(b) Punjab and Andhra Pradesh

(c) Andhra Pradesh and Haryana

(d) Uttar Pradesh and Haryana

403. How many states have a per capita production of rice (defined as total rice production divided by its population) greater than Gujarat?

(a) 3 (b) 4

(c) 5 (d) 6

404. An intensive rice producing state is defined as one whose annual rice production per million of population is at least 400,000 tons. How many states are intensive rice producing states?

(a) 5 (b) 6

(c) 7 (d) 8

Directions for Questions 405 to 408: *Answer the questions on the basis of the information given below:*

Venkat, a stockbroker, invested a part of his money in the stock of four companies — A, B, C and D. Each of these companies belonged to different industries, viz., Cement, Information Technology (IT), Auto, and Steel, in no particular order. At the time of investment, the price of each stock was Rs. 100. Venkat purchased only one stock of each of these companies. He was expecting returns of 20%, 10%, 30% and 40% from the stock of companies A, B, C and D, respectively. Returns are defined as the change in the value of the stock after one year, expressed as a percentage of the initial value. During the year, two of these companies announced extraordinarily good results. One of these two companies belonged to the Cement or the IT industry, while the other one belonged to either the Steel or the Auto industry. As a result, the returns on the stocks of these two companies were higher than the initially expected returns. For the company belonging to the Cement or the IT industry with extraordinarily good results, the returns were twice that of the initially expected returns. For the company belonging to the Steel or the Auto industry, the returns on announcement of extraordinarily good results were only one and a half times that of the initially expected returns. For the remaining two companies which did not announce extraordinarily good results, the returns realized during the year were the same as initially expected.

405. What is the minimum average return Venkat would have earned during the year?

(a) 30% (b) $31\frac{1}{4}\%$

(c) $32\frac{1}{2}\%$ (d) Cannot be determined

406. If Venkat earned a 35% return on average during the year, then which of these statements would necessarily be true?

I. Company A belonged either to Auto or to Steel Industry.

II. Company B did not announce extraordinarily good results.

III. Company A announced extraordinarily good results.

IV. Company D did not announce extraordinarily good results.

(a) I and II only

(b) II and III only

(c) III and IV only

(d) II and IV only

407. If Venkat earned a 38.75% return on average during the year, then which of these statement(s) would necessarily be true?

I. Company C belonged either to Auto or to Steel Industry.

II. Company D belonged either to Auto or to Steel Industry.

III. Company A announced extraordinarily good results.

IV. Company B did not announce extraordinarily good results.

(a) I and II only (b) II and III only

(c) I and IV only (d) II and IV only

408. If Company C belonged to the Cement or the IT industry and did announce extraordinarily good results, then which of these statement(s) would necessarily be true?

I. Venkat earned not more than 36.25% return on average.

II. Venkat earned not less than 33.75% return on average.

III. If Venkat earned 33.75% return on average, Company A announced extraordinarily good results.

IV. If Venkat earned 33.75% return on average, Company B belonged either to Auto or to Steel Industry.

(a) I and II only

(b) II and IV only

(c) II and III only

(d) III and IV only

Directions for Questions 409 to 412: *Answer the questions on the basis of the information given below:*

The year is 2089. Beijing, London, New York, and Paris are in contention to host the 2096 Olympics. The eventual winner is determined through several rounds of voting by members of the IOC with each member representing a different city. All the four cities in contention are also represented in IOC.

(a) In any round of voting, the city receiving the lowest number of votes in that round gets eliminated. The survivor after the last round of voting gets to host the event.

(b) A member is allowed to cast votes for at most two different cities in all rounds of voting combined. (Hence, a member becomes ineligible to cast a vote in a given round if both the cities (s)he voted for in earlier rounds are out of contention in that round of voting.)

(c) A member is also ineligible to cast a vote in a round if the city (s)he represents is in contention in that round of voting.

(d) As long as the member is eligible, (s)he must vote and vote for only one candidate city in any round of voting.

The following incomplete table shows the information on cities that received the maximum and minimum votes in different rounds, the number of votes cast in their favour, and the total votes that were cast in those rounds.

Round	Total votes cast	Maximum votes cast		Eliminated	
		City	No. of votes	City	No. of votes
1		London	30	New York	12
2	83	Paris	32	Beijing	21
3	75				

It is also known that:

- All those who voted for London and Paris in round, 1 continued to vote for the same cities in subsequent rounds as long as these cities were in contention.
- 75% of those who voted for Beijing in round 1, voted for Beijing in round 2 as well.
- Those who voted for New York in round 1, voted either for Beijing or Paris in round 2.
- The difference in votes cast for the two contending cities in the last round was 1.
- 50% of those who voted for Beijing in round 1, voted for Paris in round 3.

409. What percentage of members from among those who voted for New York in round 1, voted for Beijing in round 2?

(a) 33.33

(b) 50

(c) 66.67

(d) 75

410. What is the number of votes cast for Paris in round 1?

(a) 16

(b) 18

(c) 22

(d) 24

411. What percentage of members from among those who voted for Beijing in round 2 and were eligible to vote in round 3, voted for London?

(a) 33.33

(b) 38.10

(c) 50

(d) 66.67

412. Which of the following statements must be true?

I. IOC member from New York must have voted for Paris in round 2.

II. IOC member from Beijing voted for London in round 3.

(a) Only I

(b) Only II

(c) Both I and II

(d) Neither I nor II

2006

Directions for Questions 413 to 417: *Answer questions on the basis of the information given below:*

In a Class X Board examination, ten papers are distributed over five Groups - PCB, Mathematics, Social Science, Vernacular and English. Each of the ten papers is evaluated out of 100. The final score of a student is calculated in the following manner. First, the Group Scores are obtained by averaging marks in the papers within the Group. The final score is the simple average of the Group Scores. The data for the top ten students are presented below. (Dipan's score in English Paper II has been intentionally removed in the table.)

Name of the student	PCB Group			Mathematics Group	Social Science Group		Vernacular Group		English Group		Final Score
	Phy.	Chem.	Bio.		Hist.	Geo.	Paper I	Paper II	Paper I	Paper II	
Ayesha (G)	98	96	97	98	95	93	94	96	96	98	96.2
Ram (B)	97	99	95	97	95	96	94	94	96	98	96.1
Dipan (B)	98	98	98	95	96	95	96	94	96	??	96.0
Sagnik (B)	97	98	99	96	96	98	94	97	92	94	95.9
Sanjiv (B)	95	96	97	98	97	96	92	93	95	96	95.7
Shreya (G)	96	89	85	100	97	98	94	95	96	95	95.5
Joseph (B)	90	94	98	100	94	97	90	92	94	95	95
Agni (B)	96	99	96	99	95	96	82	93	92	93	94.3
Pritam (B)	98	98	95	98	83	95	90	93	94	94	93.9
Tirna (G)	96	98	97	99	85	94	92	91	87	96	93.7

Note: B or G against the name of a student respectively indicates whether the student is a boy or a girl.

413. How much did Dipan get in English Paper II?

(a) 94 (b) 96.5

(c) 97 (d) 98

(e) 99

414. Among the top ten students, how many boys scored at least 95 in at least one paper from each of the groups?

(a) 1 (b) 2

(c) 3 (d) 4

(e) 5

415. Had Joseph, Agni, Pritam and Tirna each obtained Group Score of 100 in the Social Science Group, then their standing in decreasing order of final score would be:

(a) Pritam, Joseph, Tirna, Agni

(b) Joseph, Tirna, Agni, Pritam

(c) Pritam, Agni, Tirna, Joseph

(d) Joseph, Tirna, Pritam, Agni

(e) Pritam, Tirna, Agni, Joseph

416. Students who obtained Group Scores of at least 95 in every group are eligible to apply for a prize. Among those who are eligible, the student obtaining the highest Group Score in Social Science Group is awarded this prize. The prize was awarded to:

(a) Shreya (b) Ram

(c) Ayesha (d) Dipan

(e) No one from the top ten

417. Each of the ten students was allowed to improve his/her score in exactly one paper of choice with the objective of maximizing his/her final score. Everyone scored 100 in the paper in which he or she chose to improve. After that, the topper among the ten students was:

(a) Ram (b) Agni

(c) Pritam (d) Ayesha

(e) Dipan

Directions for Questions 418 to 422: *Answer the questions on the basis of the information given below:*

Two traders, Chetan and Michael, were involved in the buying and selling of MCS shares over five trading days. At the beginning of the first day, the MCS share was priced at Rs 100, while at the end of the fifth day it was priced at Rs 110. At the end of each day, the MCS share price either went up by Rs 10, or else, it came down by Rs 10. Both Chetan and Michael took buying and selling decisions at the end of each trading day. The beginning price of MCS share on a given day was the same as the ending price of the previous day. Chetan and Michael started with the same number of shares and amount of cash, and had enough of both. Below are some additional facts about how Chetan and Michael traded over the five trading days.

1. Each day if the price went up, Chetan sold 10 shares of MCS at the closing price. On the other hand, each day if the price went down, he bought 10 shares at the closing price.
2. If on any day, the closing price was above Rs 110, then Michael sold 10 shares of MCS, while if it was below Rs 90, he bought 10 shares, all at the closing price.

418. If Chetan sold 10 shares of MCS on three consecutive days, while Michael sold 10 shares only once during the five days, what was the price of MCS at the end of day 3?

(a) Rs 90 (b) Rs 100
(c) Rs 110 (d) Rs 120
(e) Rs 130

419. If Chetan ended up with Rs 1300 more cash than Michael at the end of day 5, what was the price of MCS share at the end of day 4?

(a) Rs 90 (b) Rs 100
(c) Rs 110 (d) Rs 120
(e) Not uniquely determinable

420. If Michael ended up with 20 more shares than Chetan at the end of day 5, what was the price of the share at the end of day 3?

(a) Rs 90 (b) Rs 100
(c) Rs 110 (d) Rs 120
(e) Rs 130

421. If Michael ended up with Rs 100 less cash than Chetan at the end of day 5, what was the difference in the number of shares possessed by Michael and Chetan (at the end of day 5)?

(a) Michael had 10 less shares than Chetan.
(b) Michael had 10 more shares than Chetan.
(c) Chetan had 10 more shares than Michael.
(d) Chetan had 20 more shares than Michael.
(e) Both had the same number of shares.

422. What could have been the maximum possible increase in combined cash balance of Chetan and Michael at the end of the fifth day?

(a) Rs 3700
(b) Rs 4000
(c) Rs 4700
(d) Rs 5000
(e) Rs 6000

2007

Directions for Questions 423 to 426: *Answer the following questions based on the information given below:*

The following table shows the break-up of actual costs incurred by a company in last five years (year 2002 to year 2006) to produce a particular product:

	Year 2002	Year 2003	Year 2004	Year 2005	Year 2006
Volume of production and sale (units)	1000	900	1100	1200	1200
Costs (Rs.)					
Material	50,000	45,100	55,200	59,900	60,000
Labour	20,000	18,000	22,100	24,150	24,000
Consumables	2,000	2,200	1,800	1,600	1,400
Rent of building	1,000	1,000	1,100	1,100	1,200
Rates and taxes	400	400	400	400	400
Repair and maintenance expenses	800	820	780	790	800
Operating cost of machines	30,000	27,000	33,500	36,020	36,000
Selling and marketing expenses	5,750	5,800	5,800	5,750	5,800

The production capacity of the company is 2000 units. The selling price for the year 2006 was Rs. 125 per unit. Some costs change almost in direct proportion to the change in volume of production, while others do not follow any obvious pattern of change with respect to the volume of production and hence are considered fixed. Using the information provided for the year 2006 as the basis for projecting the figures for the year 2007, answer the following questions:

423. What is the approximate cost per unit in rupees, if the company produces and sells 1400 units in the year 2007?

(a) 104 (b) 107
(c) 110 (d) 115
(e) 116

424. What is the minimum number of units that the company needs to produce and sell to avoid any loss?

(a) 313 (b) 350
(c) 384 (d) 747
(e) 928

425. If the company reduces the price by 5%, it can produce and sell as many units as it desires. How many units the company should produce to maximize its profit?

(a) 1400 (b) 1600

(c) 1800 (d) 1900

(e) 2000

426. Given that the company cannot sell more than 1700 units, and it will have to reduce the price by Rs.5 for all units, if it wants to sell more than 1400 units, what is the maximum profit, in rupees, that the company can earn?

(a) 25,400 (b) 24,400

(c) 31,400 (d) 32,900

(e) 32,000

Directions for Questions 427 to 430: *Answer the following questions based on the information given below:*

The proportion of male students and the proportion of vegetarian students in a school are given below.

The school has a total of 800 students, 80% of whom are in the Secondary Section and rest are equally divided between Class 11 and 12.

	Male (M)	Vegetarian (V)
Class 12	0.6	
Class 11	0.55	0.5
Secondary Section		0.55
Total	0.475	0.53

427. What is the percentage of male students in the secondary section?

(a) 40 (b) 45

(c) 50 (d) 55

(e) 60

428. In Class 12, twenty five per cent of the vegetarians are male. What is the difference between the number of female vegetarians and male non-vegetarians?

(a) less than 8 (b) 10

(c) 12 (d) 14

(e) 16

429. What is the percentage of vegetarian students in Class 12?

(a) 40 (b) 45

(c) 50 (d) 55

(e) 60

430. In the Secondary Section, 50% of the students are vegetarian males. Which of the following statements is correct?

(a) Except vegetarian males, all other groups have same number of students.

(b) Except non-vegetarian males, all other groups have same number of students.

(c) Except vegetarian females, all other groups have same number of students.

(d) Except non-vegetarian females, all other groups have same number of students.

(e) All of the above groups have the same number of students.

Directions for Questions 431 to 434: *Answer the following questions based on the information given below:*

The Table below shows the comparative costs, in US Dollars, of major surgeries in USA and a select few Asian countries.

Procedure	Comparative Costs in USA and some Asian countries (in US Dollar)				
	USA	India	Thailand	Singapore	Malaysia
Heart Bypasss	130000	10000	11000	18500	9000
Heart Valve Replacement	160000	9000	10000	12500	9000
Angioplasty	57000	11000	13000	13000	11000
Hip Replacement	43000	9000	12000	12000	10000
Hysterectomy	20000	3000	4500	6000	3000
Knee Replacement	40000	8500	10000	13000	8000
Spinal Fusion	62000	5500	7000	9000	6000

The equivalent of one US Dollar in the local currencies is given below:

	1 US Dollar equivalent	
India	40.928	Rupees
Malaysia	3.51	Ringits
Thailand	32.89	Bahts
Singapore	1.53	S Dollars

A consulting firm found that the quality of the health services were not the same in all the countries above. A poor quality of a surgery may have significant repercussions in future, resulting in more cost in correcting mistakes. The cost of poor quality of surgery is given in the table below:

Procedure	Comparative cost of poor quality in USA and some Asian countries (in US Dollars '000)				
	USA	India	Thailand	Singapore	Malaysia
Heart Bypasss	0	3	3	2	4
Heart Valve Replacement	0	5	4	5	5
Angioplasty	0	5	5	4	6
Hip Replacement	0	7	5	5	8
Hysterectomy	0	5	6	5	4
Knee Replacement	0	9	6	4	4
Spinal Fusion	0	5	6	5	6

431. A US citizen is hurt in an accident and requires an angioplasty, hip replacement and a knee replacement. Cost of foreign travel and stay is not a consideration since the government will take care of it. Which country will result in the cheapest package, taking cost of poor quality into account?

(a) India

(b) Thailand

(c) Malaysia

(d) Singapore

(e) USA

432. Taking the cost of poor quality into account, which country/countries will be the most expensive for knee replacement?

(a) India

(b) Thailand

(c) Malaysia

(d) Singapore

(e) India and Singapore

433. Approximately, what difference in amount in Bahts will it make to a Thai citizen if she were to get a hysterectomy done in India instead of in her native country, taking into account the cost of poor quality? (It costs 7500 Bahts for one-way travel between Thailand and India).

(a) 23500

(b) 40500

(c) 57500

(d) 67500

(e) 75000

434. The rupee value increases to Rs.35 for a US Dollar, and all other things including quality, remain the same. What is the approximate difference in cost, in US Dollars, between Singapore and India for a Spinal Fusion, taking this change into account?

(a) 700

(b) 2500

(c) 4500

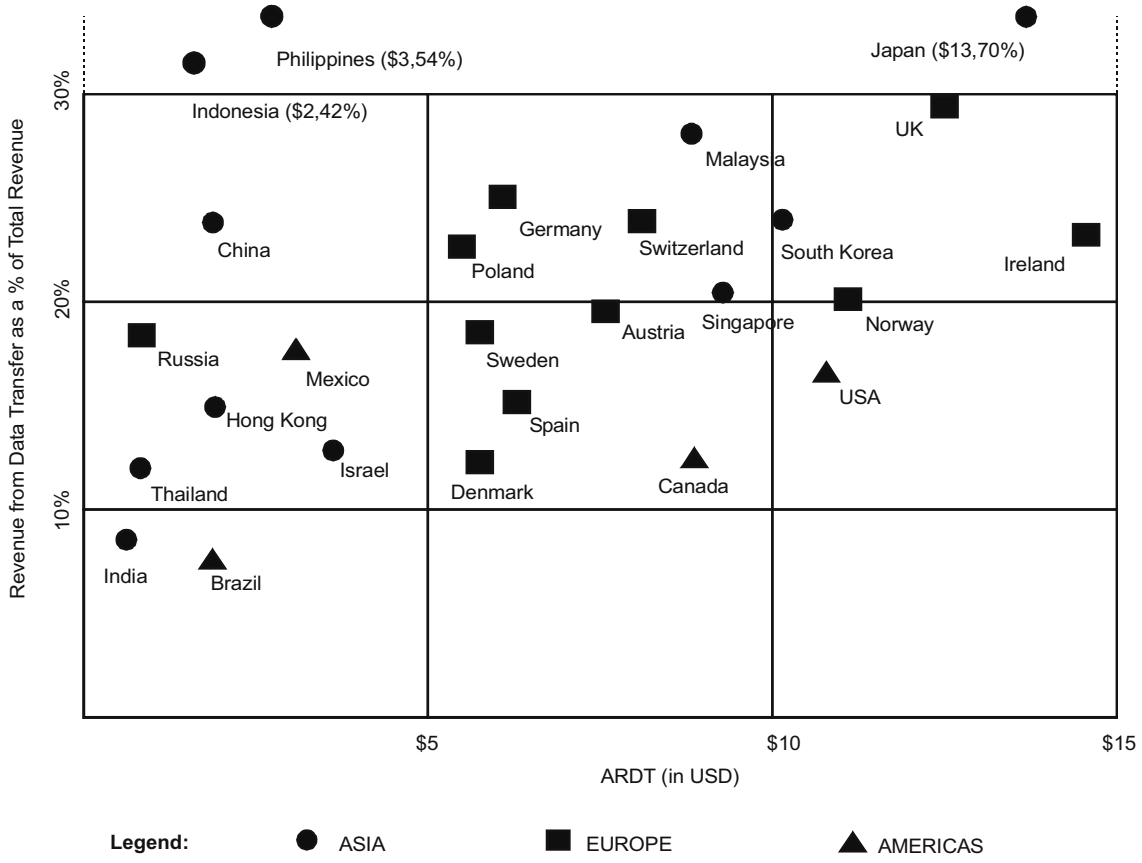
(d) 8000

(e) No difference

2008

Directions for Questions 435 to 437: *Answer the following questions based on the information given below:*

Telecom operators get revenue from transfer of data and voice. Average revenue received from transfer of each unit of data is known as ARDT. In the diagram below, the revenue received from data transfer as percentage of total revenue received and the ARDT in US Dollars (USD) are given for various countries.



435. It was found that the volume of data transfer in India is the same as that of Singapore. Then which of the following statements is true?

(a) Total revenue is the same in both countries.

(b) Total revenue in India is about 2 times that of Singapore.

(c) Total revenue in India is about 4 times that of Singapore.

(d) Total revenue in Singapore is about 2 times that of India.

(e) Total revenue in Singapore is about 4 time that of India.

436. It is expected that by 2010, revenue from data transfer as a percentage of total revenue will triple for India and double for Sweden. Assume that in 2010, the total revenue in India is twice that of Sweden and that the volume of data transfer is the same in both the countries. What is the percentage increase of ARDT in India if there is no change in ARDT in Sweden?

(a) 400%

(b) 550%

(c) 800%

(d) 950%

(e) cannot be determined

437. If the total revenue received is the same for the pairs of countries listed in the choices below, choose the pair that has approximately the same volume of data transfer.

(a) Philippines and Austria

(b) Canada and Poland

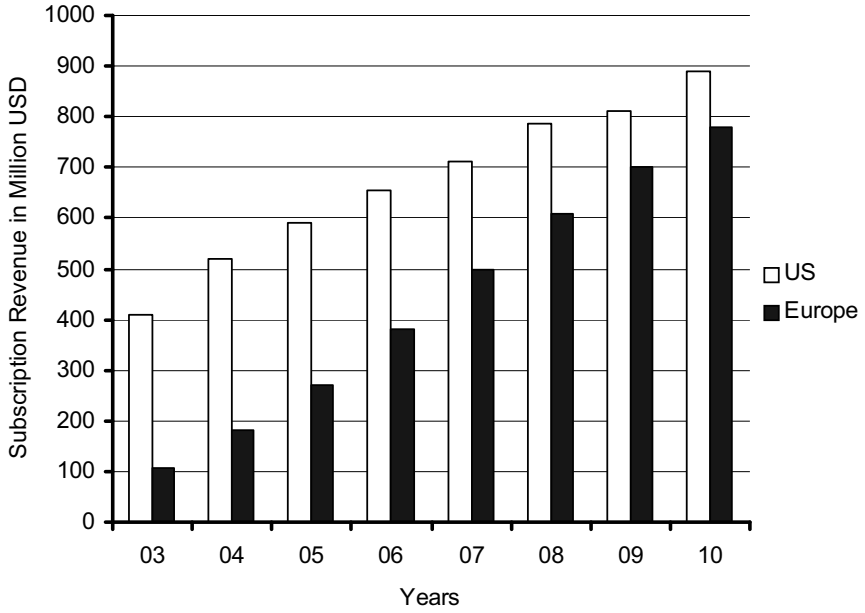
(c) Germany and USA

(d) UK and Spain

(e) Denmark and Mexico

Directions for Questions 438 to 441: *Answer the following questions based on the information given below:*

The bar chart below shows the revenue received in million US Dollars (USD), from subscribers to a particular Internet service. The data covers the period 2003 to 2007 for the United States (US) and Europe. The bar chart also shows the estimated revenues from subscription to this service for the period 2008 to 2010.



438. The difference between the estimated subscription in Europe in 2008 and what it would have been if it were computed using the percentage growth rate of 2007 (over 2006), is closest to:

(a) 50 (b) 80
(c) 20 (d) 10
(e) 0

439. In 2003, sixty percent of subscribers in Europe were men. Given that women subscribers increase at the rate of 10 percent per annum and men at the rate of 5 percent per annum, what is the approximate percentage growth of subscribers between 2003 and 2010 in Europe? The subscription prices are volatile and may change each year.

(a) 62 (b) 15
(c) 78 (d) 84
(e) 50

440. Consider the annual percent change in the gap between subscription revenues in the US and Europe. What is the year in which the absolute value of this change is the highest?

(a) 03 - 04 (b) 05 - 06
(c) 06 - 07 (d) 08 - 09
(e) 09 - 10

441. While the subscription in Europe has been growing steadily towards that of the US, the growth rate in Europe seems to be declining. Which of the following is closest to the percent change in growth rate of 2007 (over 2006) relative to the growth rate of 2005 (over 2004)?

(a) 17 (b) 20
(c) 35 (d) 60
(e) 100

Directions for Questions 442 to 446: *Answer the following questions based on the information given below:*

Abdul, Bikram and Chetan are three professional traders who trade in shares of a company XYZ Ltd. Abdul follows the strategy of buying at the opening of the day at 10 am and selling the whole lot at the close of the day at 3 pm. Bikram follows the strategy of buying at hourly intervals: 10 am, 11 am, 12 noon, 1 pm, and 2 pm, and selling the whole lot at the close of the day. Further, he buys an equal number of shares in each purchase. Chetan follows a similar pattern as Bikram but his strategy is somewhat different. Chetan's total investment amount is divided equally among his purchases. The profit or loss made by each investor is the difference between the sale value at the close of the day less the investment in purchase. The "return" for each investor is defined as the ratio of the profit or loss to the investment amount expressed as a percentage.

442. On a day of fluctuating market prices, the share price of XYZ Ltd. ends with a gain, i.e, it is higher at the close of the day compared to the opening value. Which trader got the maximum return on that day?

(a) Bikram (b) Chetan
(c) Abdul (d) Bikram or Chetan
(e) cannot be determined

443. Which one of the following statements is always true?

(a) Abdul will not be one with the minimum return

(b) Return for Chetan will be higher than that of Bikram

(c) Return for Bikram will be higher than that of Chetan

(d) Return for Chetan cannot be higher than that of Abdul

(e) none of the above

444. On a "boom" day the share price of XYZ Ltd. keeps rising throughout the day and peaks at the close of the day. Which trader got the minimum return on that day?

(a) Bikram (b) Chetan

(c) Abdul (d) Abdul or Chetan

(e) cannot be determined

One day, two other traders, Dane and Emily joined Abdul, Bikram and Chetan for trading in the shares of XYZ Ltd. Dane followed a strategy of buying equal numbers of shares at 10 am. 11 am and 12 noon, and selling the same numbers at 1 pm, 2 pm and 3 pm. Emily, on the other hand, followed the strategy of buying shares us ing all her money at 10 am and selling all of them at 12 noon and again buying the shares for all the money at 1 pm and again selling all of them at the close of the day at 3 pm. At the close of the day the following was observed.

i. Abdul lost money in the transactions.

ii. Both Dane and Emily made profits.

iii. There was an increase in share price during the closing hour compared to the price at 2 pm.

iv. Share price at 12 noon was lower than the opening price

445. Share price was at its highest at

(a) 10 am (b) 11 am

(c) 12 noon (d) 1 pm

(e) cannot be determined

446. Which of the following is necessarily false?

(a) Share price was at its lowest at 2 pm

(b) Share price was at its lowest at 11 am

(c) Share price at 1 pm was higher than the share price at 2 pm

(d) Share price at 1 pm was higher than the share price at 12 noon

(e) none of the above

Directions for Questions 447 to 449: *Answer the following questions based on the information given below:*

There are 100 employees in an organization across five departments. The following table gives the department-wise distribution of average age, average basic pay and allowances. The gross pay of an employee is the sum of his/her basic pay and allowances.

Department	Number of Employees	Average Age (Years)	Average Basic Pay (Rs.)	Allowances (% of Basic Pay)
HR	5	45	5000	70
Marketing	30	35	6000	80
Finance	20	30	6500	60
Business Development	35	42	7500	75
Maintenance	10	35	5500	50

There are limited numbers of employees considered for transfer/promotion across departments. Whenever a person is transferred/promoted from a department of lower average age to a department of higher average age, he/she will get an additional allowance of 10% of basic pay over and above his/her current allowance. There will not be any change in pay structure if a person is transferred/promoted from a department with higher average age to a department with lower average age.

Questions below are independent of each other.

447. What is the approximate percentage change in the average gross of the HR department due to transfer of a 40-year old person with basic pay of Rs. 8000 from the Marketing department?

(a) 9% (b) 11%

(c) 13% (d) 15%

(e) 17%

448. There was a mutual transfer of an employee between Marketing and Finance departments and transfer of one employee from Marketing to HR. As a result, the average age of Finance department increased by one year and that of Marketing department remained the same. What is the new average age of HR department?

(a) 30 (b) 35

(c) 40 (d) 45

(e) cannot be determined

449. If two employees (each with a basic pay of Rs. 6000) are transferred from Maintenance department to HR department and one person (with a basic pay of Rs. 8000) was transferred from Marketing department to HR department, what will be the percentage change in average basic pay of HR department?

(a) 10.5% (b) 12.5%
(c) 15% (d) 30%
(e) 40%

MEMORY BASED QUESTIONS

2009

Directions for Questions 450 to 452: *Answer the following questions on the basis of the information given below.* The table given below shows the production figures (in thousand tonnes) of the various types of crops produced in the country called Khetistan for three years. It also shows the percentage contribution of Charyana, one of the states of Khetistan, to the total production of Khetistan for each year.

	1991		1992		1993	
	Khetistan (in '000 tonnes)	Charyana (in %)	Khetistan (in '000 tonnes)	Charyana (in %)	Khetistan (in '000 tonnes)	Charyana (in %)
Wheat	1500	20	1800	25	2000	25
Rice	2000	15	2200	20	2400	20
Bajra	500	25	600	15	800	15
Maize	400	20	300	15	500	20
Others	1200	10	1400	10	1000	10
Total	5600		6300		6700	

450. In which year was the percentage contribution of Charyana to the total production of Khetistan (all the crops) maximum during the period 1991-1993?

(a) 1991 (b) 1992
(c) 1993 (d) Cannot be determined

451. Which crop showed a decline in production for two consecutive years in Charyana during the period 1991-1993?

(a) Bajra (b) Maize
(c) Rice (d) None of these

452. Which crop showed a decline in production for at least one year in Charyana despite showing an increase in production for two consecutive years in Khetistan during the period 1991-1993?

(a) Wheat (b) Rice
(c) Bajra (d) Maize

Directions for questions 453 to 456: *Answer the following questions on the basis of the information given below.*

The performance of six students of a class in five subjects is evaluated on a 9-point grading system. Each student is awarded a grade and grade points in each of the five subjects based on the marks obtained by him in that subject (See Table - 1). Table - 2 shows the marks obtained by each student in the five subjects. A student's GPA (Grade Point Average) is the average of the grade points awarded to him in the five subjects.

Marks Range	Grade	Grade Points
91-100	A1	10
81-90	A2	9
71-80	B1	8
61-70	B2	7
51-60	C1	6
41-50	C2	5
31-40	D	4
21-30	E	3
0-20	F	2

Table - 1

		Subject-wise Marks Scored				
		English	Hindi	Math	Science	S.Sc.
Student	Abhishek	56	67	92	97	51
	Saral	88	79	87	Z	88
	Himanshu	X	81	82	89	81
	Puneet	83	90	91	78	79
	Vijay	74	65	Y	67	77
	Sanjay	73	88	93	60	86

Table - 2

Additional Information:

- The sum of the GPAs of Saral and Puneet is equal to the sum of the GPAs of Himanshu and Sanjay.
- The GPAs of Abhishek and Vijay are equal.
- Saral, Himanshu, Puneet and Sanjay get distinct GPAs.

- Though the total marks (the sum of the marks obtained in the five subjects) of Himanshu are not the highest, his GPA is the highest among the six students.
- The sum of the marks obtained by the six students in Science is more than the sum of the marks obtained by the six students in exactly three of the other four subjects.

453. Which grade is awarded to Saral in Science?
(a) A1 (b) A2
(c) B1 (d) B2

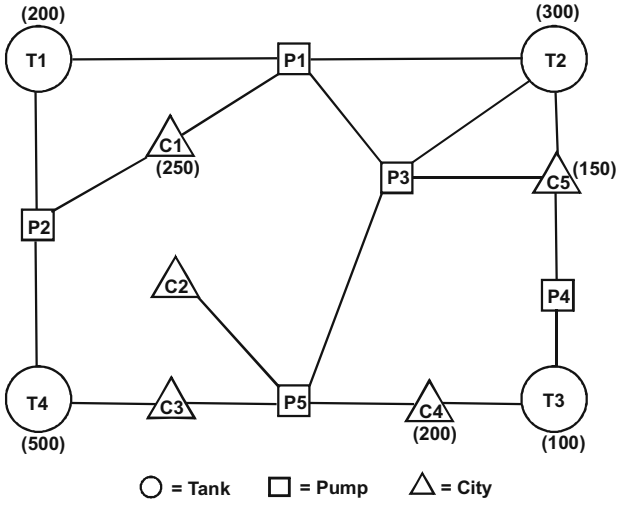
454. Who gets the second highest GPA among the six students?
(a) Saral (b) Puneet
(c) Vijay (d) Sanjay

455. What is the sum of the marks obtained by Saral in the five subjects?
(a) 422 (b) 432
(c) 426 (d) Cannot be determined

456. How many values are possible for X?
(a) 1 (b) 10
(c) 8 (d) None of these

Directions for questions 457 to 460 : Answer the following questions on the basis of the information given below.

The figure given below shows a water distribution system consisting of tanks, pumps and the connecting pipelines. It supplies water to five cities C1, C2, C3, C4 and C5. The water can flow only in one direction in a pipeline. The water stored (in million gallons) initially in the tanks T1, T2, T3 and T4 was 200, 300, 100 and 500 respectively. The system starts when the water starts flowing out of each tank and is distributed equally among all the pipelines connected to a tank. The pumps do not consume any water and the volume of the water coming in and going out of a pump is the same. The consumption of water (in million gallons) in C1, C4 and C5 is 250, 200 and 150 respectively. The consumption of water in C2 and C3 is in the ratio 3 : 2. The water which is left after consumption in a city flows out of it through a pipeline.



457. What is the ratio of the volume of the water coming in to the water going out of C1?
(a) 5 : 2 (b) 3 : 1
(c) 2 : 1 (d) 7 : 2

458. What is the consumption (in million gallons) of water in C2?
(a) 200 (b) 250
(c) 300 (d) 350

459. What is the volume of the water that flows through the pipeline joining C5 and P3?
(a) 50 (b) 100
(c) 150 (d) None of these

460. What is the ratio of the volume of the water that flows through P1 to the water that flows through P5?
(a) 1 : 3 (b) 2 : 3
(c) 3 : 4 (d) 5 : 9

2010

Directions for questions 461 and 462: *Answer the questions on the basis of the information given below.*

The performance appraisal of the employees of Hondai Motors Pvt Ltd. was done three times in the year 2010. The first appraisal was done in January, the second in July and the third in November. Only the employees who were appraised in January were eligible for appraisal in July and only those who were appraised in July were eligible for appraisal in November.

During an appraisal, an employee was appraised on exactly one of the three performance areas – Individual Performance, Team Performance and Moral Conduct. An employee already appraised on a particular performance area was not appraised on the same performance area in subsequent appraisal(s) during the year.

The table given below shows the number of employees appraised in each of the three appraisal months in 2010 for different performance areas.

Performance Area	Appraisal Month		
	January	July	November
Individual Performance	70	30	9
Team Performance	67	22	13
Moral Conduct	97	29	11

461. How many employees of Hondai Motors Pvt Ltd. were appraised on exactly one performance area in 2010?
(a) 235
(b) 121
(c) 154
(d) None of these

462. Among the employees of Hondai Motors Pvt Ltd. who were appraised in 2010, how many were not appraised on Individual Performance?

(a) 125 (b) 134

(c) 113 (d) 165

Directions for questions 463 to 465 : Answer the questions on the basis of the information given below.

Ten people – Chuck, Berry, David, Gilmour, Eric, Clapton, Jimmy, Page, Kirk and Hammett – live in a building that has six floors numbered 1 to 6 (lowest to highest). Each floor is occupied by at least one of the ten people. If N(x) represents the number of people living on floor x, then N(1) = N(6) ≠ N(3) and N(2) = N(5). Also, N(x) ≠ N(x+1) for x = 1 to 5. It is also known that:

(i) Both Chuck and Berry live on the floor that is immediately above the floor on which Kirk lives.

(ii) David lives on a higher floor as compared to Clapton, Jimmy and Hammett but on a lower floor as compared to Chuck.

(iii) Gilmour and Page live on the same floor.

(iv) The number of people who live on the floor on which Jimmy lives is equal to that on which Eric lives.

463. What is the difference between the number of people who live on floor 3 and floor 5?

(a) 0 (b) 1

(c) 3 (d) 2

464. Who among the following lives on floor 6?

(a) Eric (b) David

(c) Chuck (d) Gilmour

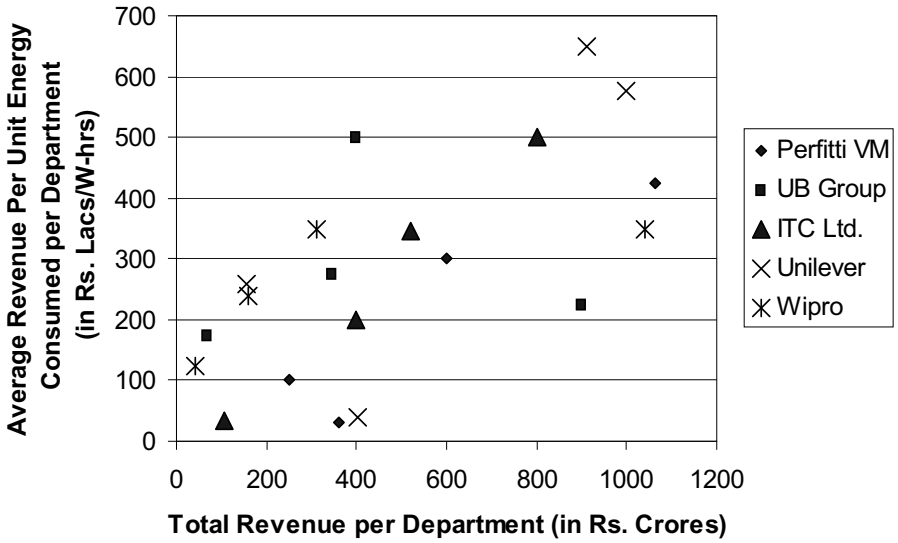
465. How many people live on a floor higher than the one on which Jimmy lives?

(a) 7 (b) 5

(c) 9 (d) 6

Directions for questions 466 to 468: *Answer the questions on the basis of the information given below.*

The graph given below shows the statistics of five companies – Perfitti VM, UB Group, ITC, Unilever and Wipro – in India. Each point on the graph indicates the Total Revenue generated by a different department of one of these companies and the Average Revenue generated per Unit Energy Consumed by that particular department.



466. If the departments represented in the graph are the only departments in the five companies where energy is consumed, then for which company is the Energy Consumption the highest?

(a) Wipro (b) UB Group

(c) ITC Ltd. (d) None of these

467. How many of the represented departments across the five companies have consumed less than 100W-hrs of energy?

(a) Seven (b) Three

(c) Five (d) Six

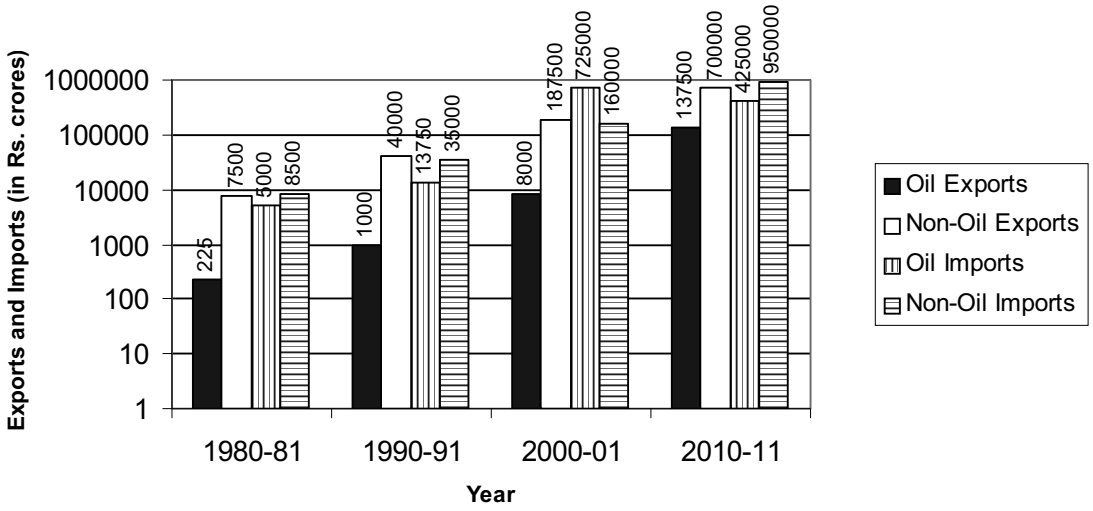
468. Which of the five companies has the highest number of departments that generate more than Rs. 600 crores as the Total Revenue and consume less than 200W-hrs of energy?

(a) Perfitti VM (b) Unilever

(c) Wipro (d) ITC Ltd.

Directions for questions 469 and 470 : *Answer the questions on the basis of the information given below.*

The graph given below shows the total Exports and Imports of a country for four different years.



Please note:

(i) Total Exports is the sum of Oil Exports and Non-Oil Exports.

(ii) Total Imports is the sum of Oil Imports and Non-Oil Imports.

(iii) Oil Trade Balance is the surplus of Oil Exports over Oil Imports.

(iv) Non-Oil Trade Balance is the surplus of Non-Oil Exports over Non-Oil Imports.

(v) Total Trade Balance is the sum of Oil Trade Balance and Non-Oil Trade Balance.

469. Which of the following experiences the highest increase?

(a) Oil Exports from 2000-01 to 2010-11.

(b) Oil Imports from 1990-91 to 2000-01.

(c) Oil Trade Balance from 1990-91 to 2000-01.

(d) Total Trade Balance from 1990-91 to 2000-01

470. Which of the following experiences the lowest percentage change?

(a) Non-Oil Exports from 2000-01 to 2010-11.

(b) Total Exports from 1990-91 to 2000-01.

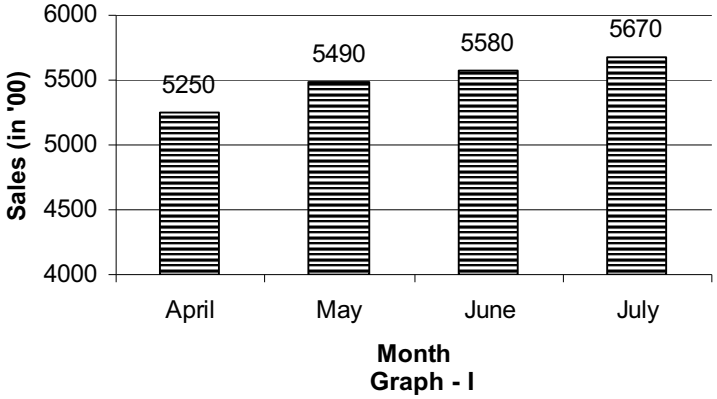
(c) Oil Imports from 1980-81 to 1990-91.

(d) Total Imports from 2000-01 to 2010-11.

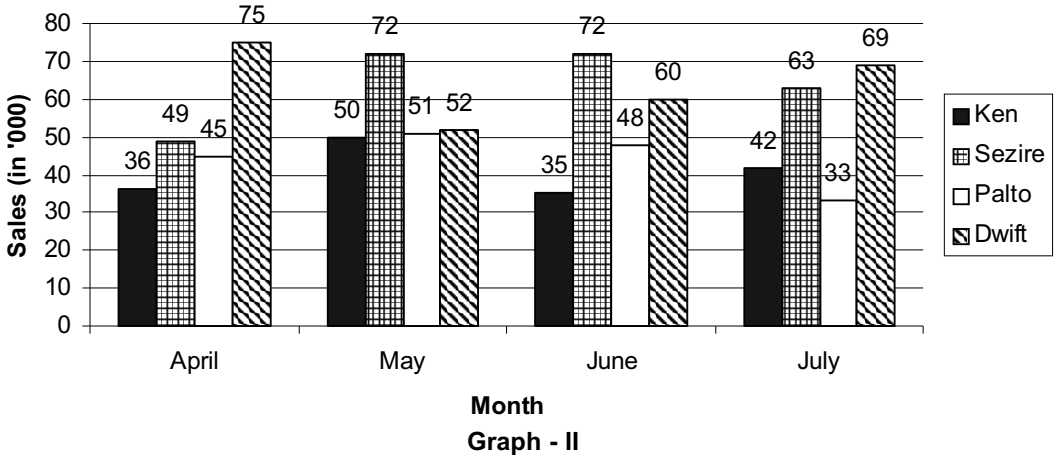
2011

Directions for questions 471 to 473: *Answer the questions on the basis of the information given below.*

Bar Graph - I shows the month-wise total sales (in '00 units) of cars by Naruti Kuzuki Ltd. from April 2010 to July 2010.
Bar Graph - II shows the sales (in '000 units) of four of the car models – Ken, Sezire, Palto and Dwift – of Naruti Kuzuki Ltd. in the four months.



Graph - I



Graph - II

471. For which of the four car models is the absolute percentage change in the sales from April 2010 to July 2010 equal to the absolute percentage change in the total sales of cars by Naruti Kuzuki Ltd. during the same period?

(a) Dwift
(b) Ken
(c) Sezire
(d) Palto

472. What is the percentage increase in the sales of the rest of the car models (other than the given four) by Naruti Kuzuki Ltd. from May 2010 to July 2010?

(a) 7.5% (b) 8%
(c) 9.09% (d) None of these

473. For which month is the ratio of the sales of Sezire to the total sales of cars by Naruti Kuzuki Ltd. the highest?

(a) April (b) May
(c) June (d) July

Directions for questions 474 and 475 : *Answer the questions on the basis of the information given below.*

Travelabad is famous for its vast railway network. It has three types of trains – Super Fast, Express and Passenger – and each type of train has two classes of travel – Sleeper and Air Conditioned. The train fare in Travelabad has two components – fixed fare and variable fare. The fixed fare is based on the class of travel – Rs. 60 for Sleeper and Rs. 100 for Air Conditioned. The variable fare depends on the distance of the journey, the type of train and the class of travel. The table given below shows the variable fare (in Rs.) for different distance ranges from the source station to the destination station.

Distance Range	≤150 km		151 – 500 km		501 – 1000 km		1001 – 1800 km		≥1801 km	
Class	SL	AC	SL	AC	SL	AC	SL	AC	SL	AC
Super Fast	80	200	155	500	250	650	340	950	480	1250
Express	60	160	110	300	175	450	240	650	330	900
Passenger	45	120	80	225	125	325	160	425	225	550

AC = Air Conditioned Class

SL = Sleeper Class

474. Ghumakkad Das travels only in the Sleeper class of Super Fast trains. He travelled from Delhi to Bhopal and then took another train from Bhopal to Mumbai. Next day he returned to Delhi directly from Mumbai. The total train fare while going to Mumbai from Delhi via Bhopal exceeded the train fare while coming back to Delhi from Mumbai by Rs.125. If Bhopal lies on the only rail route connecting Delhi and Mumbai, in which range does Delhi-Mumbai rail distance fall?

(a) 151 – 500 km (b) 501 – 1000 km
(c) 1001 – 1800 km (d) ≥1801 km

475. One day Yatri Kumar travelled in the Sleeper Class of a train. Next day he travelled in the Air Conditioned Class of the same type of train for a different journey. If the train fare on the two days was exactly the same, in which type of train did he travel?

(a) Super Fast (b) Express

(c) Passenger (d) Cannot be determined

Directions for questions 476 to 478 : *Answer the questions on the basis of the information given below.*

The table given below shows the various costs (in Rs. lakhs) incurred on the production of one ton of five different crops and the Selling Price (in Rs. lakhs) per ton of each crop.

Crop	Maize	Rice	Sugar Cane	Cotton	Mustard Seeds
Raw material cost	10.5	12	7.5	27	19
Insecticides/ Pesticides cost	11.5	8	9.5	42.5	32.5
Fertilizers cost	13.5	10	17.5	20	21
Fuel Consumption Cost	20	15	12.5	10	22.5
Irrigation cost	8	11.5	22	33	16.5
Storage cost	14	8.5	21	20	11
Transportation cost	12.5	10	15	7.5	17.5
Selling Price	120	90	125	175	180

Note: Profit = Selling Price – Total Cost

476. For which crop is the profit percentage per ton the highest?

(a) Cotton (b) Maize

(c) Mustard Seeds (d) None of these

477. For how many of the given crops is the Irrigation cost more than 20% of the total cost?

(a) 0 (b) 1

(c) 2 (d) 3

478. If 1 kg of raw material of Cotton costs Rs. 54 and 200 grams of raw material is sown in 10 m^2 of land, then what is the area of land required for producing 1 ton of Cotton?

(a) 2500 m^2

(b) 500 m^2

(c) 2.5 km^2

(d) 5 km^2

2012

Directions for Questions 479 to 481 : Answer the questions on the basis of the information given below.

The bar charts given below shows the details of the "Budgeted I-Tax" collections and the "Actual I-Tax" collections of India in each of the years from 2004-05 to 2008-09. Bar Chart-I shows the details of the **Total I-Tax** collections and bar chart-II shows the details of the **Corporate I-Tax** collections. There are only two categories of taxpayers in India "Individual Taxpayers" and "Corporate Taxpayers". All the figures are in Rs. crores.

Total I-Tax collections

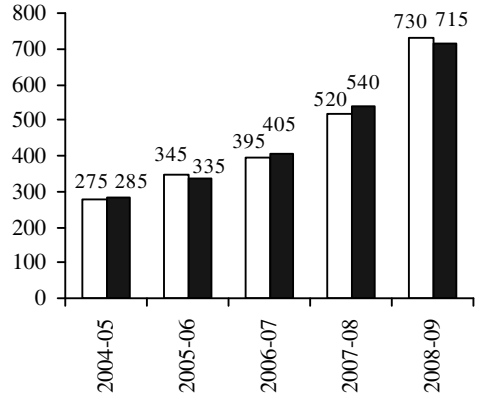


Chart I

Corporate I-Tax collections

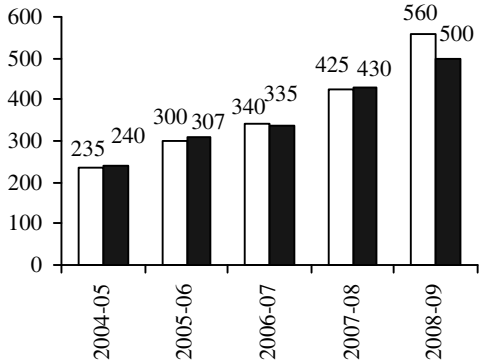


Chart II

☐ Budgeted ■ Actual

$$\text{Efficacy Ratio} = \left(\frac{\text{Budgeted I-Tax Collections}}{\text{Actual I-Tax Collections}}\right)$$

479. For how many of the given years the Efficacy Ratio of at least two out of "Total I-Tax" collections, "Corporate I-Tax" collections and "Individual I-Tax" collections is greater than 1?

(a) 0 (b) 1

(c) 2 (d) Data Insufficient

480. In which of the following years, for either of the Corporate I-Tax collections or the Total I-Tax collections, the percentage growth of I-Tax over the previous year for both the Budgeted and the Actual is approximately the same?

(a) 2005-06 (b) 2006-07

(c) 2007-08 (d) Both (b) and (c)

481. Which of the following statements (is/are) true?

I. Percentage contribution of the corporate I-Tax (Actual) collections to the total I-Tax (Actual) collections has decreased in the year 2008-09 in comparison to the year 2005-06.

II. Simple Annual growth rate of Actual I-Tax paid by the individual taxpayers for the period 2004-05 to 2008-09 is more than 90 percent

III. Efficacy ratio for the "Corporate I-Tax" collections is the highest in the year 2008-09.

(a) I (b) II

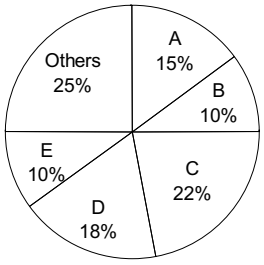
(c) III (d) I, II and III

Directions for Questions 482 to 484 : Answer the following questions on the basis of the information given below.

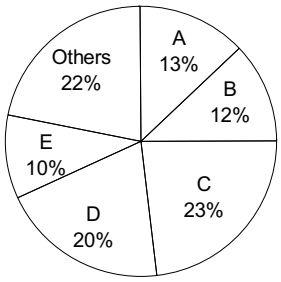
The following table gives the sales turnover (in crore Rs.) of the five major detergent brands A, B, C, D, E and others in the 4 regions East, West, North and South of India. The data is for the years 2008 and 2009. The pie chart gives the breakup of the sales of the same brands in terms of the number of units sold. The total number of units sold for 2008 and 2009 was the same.

Region → / Brand ↓	East		West		North		South		Total	
	2008	2009	2008	2009	2008	2009	2008	2009	2008	2009
A	165	172	180	192	167	190	213	180	725	734
B	75	90	62	75	53	72	17	77	207	314
C	212	182	207	222	153	162	137	120	709	686
D	101	115	121	134	113	121	178	190	513	560
E	90	105	87	95	73	92	67	92	317	384
Others	250	310	152	175	143	162	57	83	602	730
Total	893	974	809	893	702	799	669	742		

Volumewise Breakup of Brands All India



2008



2009

482. What is the total sales turnover (in crore Rs.) of the detergent market in India in the year 2009?

(a) 3073 (b) 2842

(c) 2906 (d) 3408

483. Which brand registered the maximum percentage increase in the price per unit in 2009?

(a) A (b) B

(c) D (d) E

484. Which of the following statement(s) is/are true?

1. Exactly two brands could not register a growth in all the regions in 2009.
2. The number of units sold by B in 2009 has shown an increase of above 350% in South.
3. The number of units sold by C in 2009 was less than that sold by C in 2008.

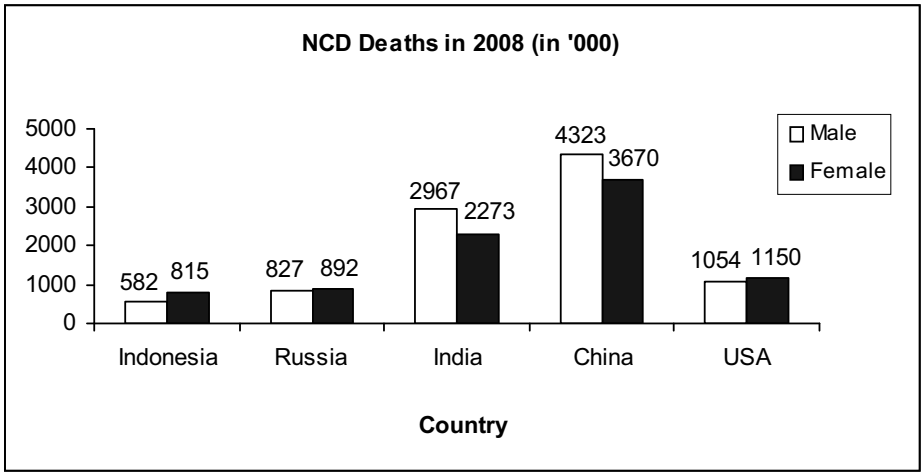
(a) Only 1 (b) 1 and 2

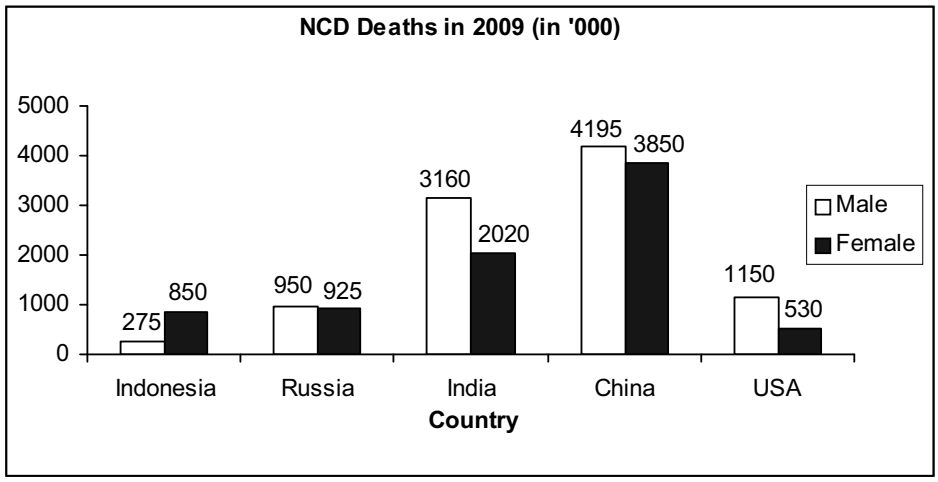
(c) 1 and 3 (d) 2 and 3

2013

Directions for questions 485 to 487 : Answer the questions on the basis of the information given below.

The bar graphs given below show the gender-wise deaths (in '000) due to NCDs (Non Communicable Diseases) in five countries for the years 2008 and 2009.





485. In how many countries was the number of deaths due to NCDs in 2009 less than that in 2008?

(a) 1 (b) 2

(c) 3 (d) 4

486. By what percent was the total number of female deaths due to NCDs in the five countries put together in 2009 more/less than that in 2008?

(a) 7.10 (b) 6.40

(c) 8.60 (d) 7.90

487. What was the absolute difference between the total number of male deaths due to NCDs in the five countries put together in 2008 and 2009?

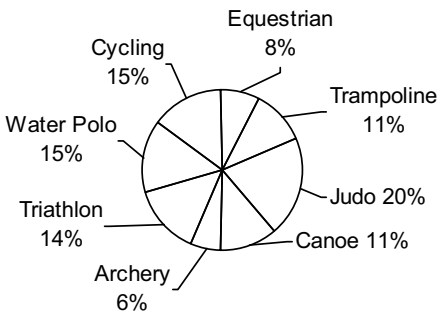
(a) 22500 (b) 23000

(c) 24000 (d) None of these

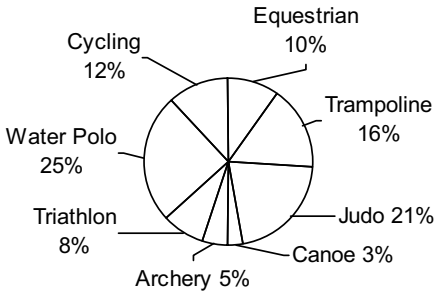
Directions for questions 488 to 490: Answer the questions on the basis of the information given below.

The pie charts given below show the distribution of the number of athletes sent by three countries to take part in eight different games in the recently held Olympics. The numbers of athletes sent by USA, China and Russia were in the ratio 8 : 11 : 5. It is also known that the total number of athletes sent by the three countries put together was 2400.

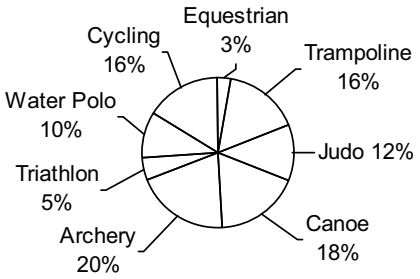
USA



China



Russia



488. The female to male ratio for Cycling athletes from Russia and USA was 1 : 19 and 4 : 1 respectively. If the number of female Cycling athletes was equal to the number of male Cycling athletes for the three countries put together, then what was the number of female Cycling athletes from China?

(a) 4

(b) 96

(c) 66

(d) None of these

489. What was the absolute difference between the maximum number of athletes sent by China for a game and the minimum number of athletes sent by Russia for a game?

(a) 260

(b) 160

(c) 242

(d) 145

490. The number of Water Polo athletes constituted what percent of the total number of athletes sent by the three countries put together?

(a) 20.00 (b) 18.90

(c) 22.30 (d) 18.54

Directions for questions 491 to 493: Answer the questions on the basis of the information given below.

The table given below shows the data related to a few key financial indicators for fourteen European countries in the FY 2011-12.

Country	Inflation (%)	Long-term interest rate (% p.a.)	Debt to GDP ratio (in %)	Fiscal-deficit (as a % of GDP)
Austria	2.2	3.4	70.2	4.8
Belgium	3.4	3.9	100.8	4.8
Cyprus	2.2	4.6	61.1	5.7
Denmark	2.2	3	46.6	4.6
Estonia	2.4	5.7	7.7	1.7
Finland	1.1	3.1	45.4	3.4
France	1.5	3.3	83.5	8
Germany	1.9	2.9	74.8	4.5
Italy	1.4	4.6	118	5.1
Latvia	1.2	7.5	48	8.6
Malta	1.7	4.4	72	3.8
Netherlands	1.1	3.1	64.6	5.6
Poland	2.4	5.9	53.9	7.3
Portugal	1.1	6.5	83.2	7.3

491. If the Fiscal-deficit of France was x Euros, which was 50% more than that of Belgium, then what was the Debt (in Euros) of Belgium in FY 2011-12?

(a) 13x

(b) 7x

(c) 14x

(d) 6.5x

492. The countries with the Long-term interest rate less than 4% per annum, Debt to GDP ratio less than 60% and Fiscal-deficit not more than 4.6% were given a AAA rating. The number of countries rated AAA among the fourteen in FY 2011-12 was

(a) 0

(b) 1

(c) 2

(d) None of these

493. If the GDP (in Euros) of Finland was 50% more than that of Italy, then by what percent was the Fiscal-deficit (in Euros) of Italy more/less than that of Finland in FY 2011-12?

(a) 0

(b) 1.5

(c) 0.5

(d) Cannot be determined

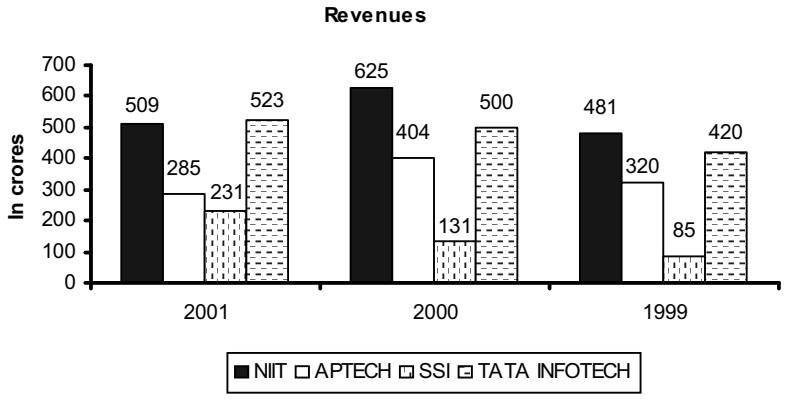
2014

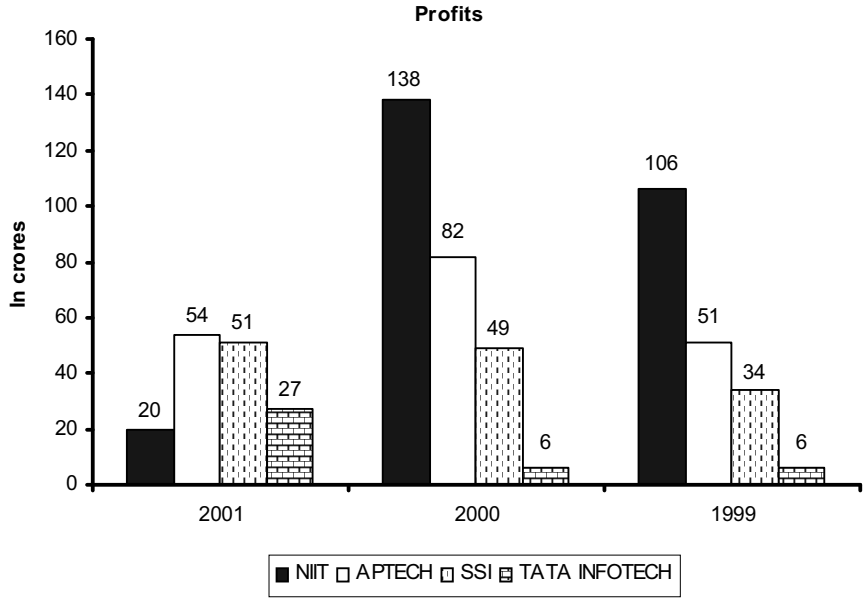
Direction for questions 494 to 497 : Answer the questions on the basis of the information given below.

The graphs given below show the revenues and profits of four IT education companies.

Profitability = (Profit/Revenue)

Total cost = Revenue – Profit





494. In 1999, how many companies have a profitability less than the average of the profitabilities of the four companies?

(a) 1 (b) 2

(c) 3 (d) 0

495. In 2002, if the cost in each company increased by 10% over 2001 and the revenue for each company decreased by 10% over 2001, what is the approximate profitability of all the companies taken together in 2002?

(a) 10.25% (b) –10.25%

(c) –9.25% (d) 8.75%

496. Arrange the companies in increasing order of their profitability in 2001.

(a) NIIT, Tata Infotech, Aptech, SSI

(b) NIIT, Tata Infotech, SSI, Aptech

(c) NIIT, Aptech, Tata Infotech, SSI

(d) SSI, Aptech, Tata Infotech, NIIT

497. Which company has the highest profitability in 2000?

(a) NIIT

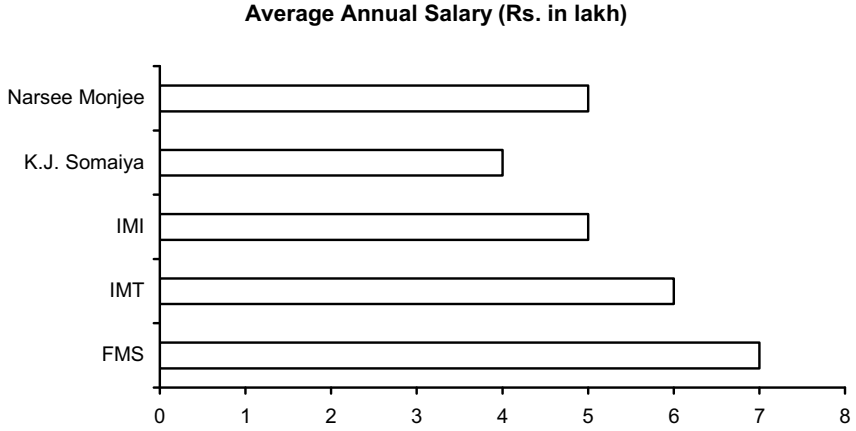
(b) Aptech

(c) SSI

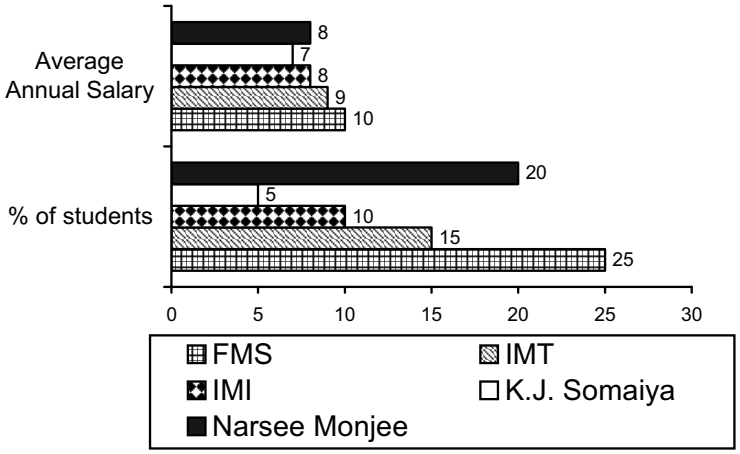
(d) Tata Infotech

Directions for questions 498 to 500 : Answer the questions on the basis of the information given below.

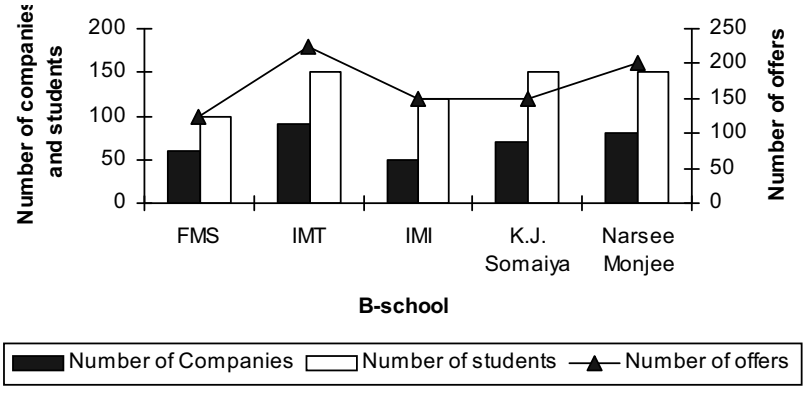
The average annual salary figures of five leading B-schools have been shown below.



The percentage of students getting PPOs (Pre-Placement offers) and their average annual salary in lakhs is shown below.



The number of students, the number of companies visiting the campus and total offers made (including PPO's) have been shown below for these five leading B-schools.



498. Which school has the highest total number of offers per student?

(a) IMT (b) Narsee Monjee

(c) IMI (d) FMS

499. The ratio of number of offers to the number of companies visiting the campus is highest for:

(a) IMT (b) K.J. Somaiya

(c) IMI (d) FMS

500. At FMS, what is the average salary of students, who did not get a PPO?

(a) Rs. 6.5 lakh (b) Rs. 4.5 lakh

(c) Rs. 8 lakh (d) Rs. 6 lakh

501. The sequence P_1 , P_2 , P_3, ... is defined by $P_1 = 211$, $P_2 = 375$, $P_3 = 420$, $P_4 = 523$, and $P_n = P_{n-1} - P_{n-2} + P_{n-3} - P_{n-4}$ for all $n \geq 5$. What will be the value of $P_{531} + P_{753} + P_{975}$?

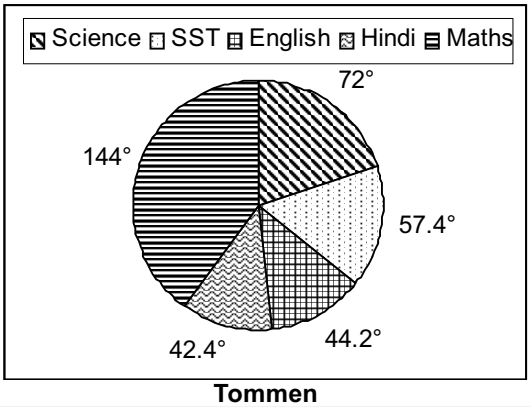
(a) 898 (b) 631

(c) 364 (d) 544

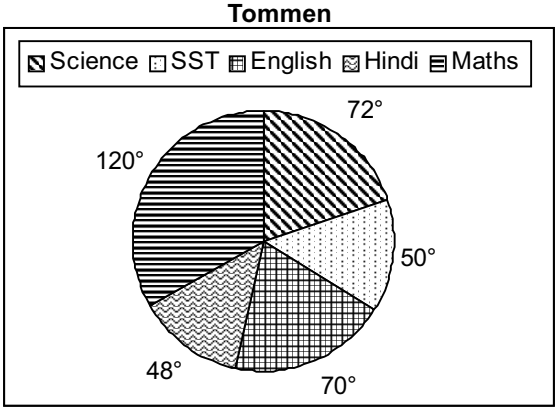
Directions for questions 502 to 505 : Answer the questions on the basis of the information given below.

The subject wise breakup of the marks obtained by 4 students in 5 subjects during their board examination is given below. Assume that all subjects carry equal maximum marks unless specified.

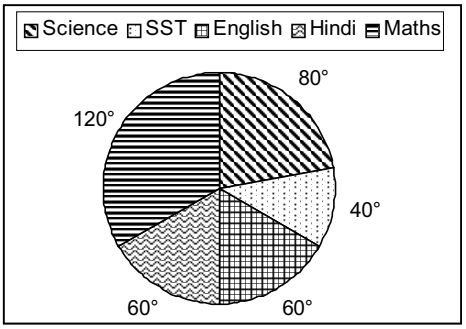
Geoffrey



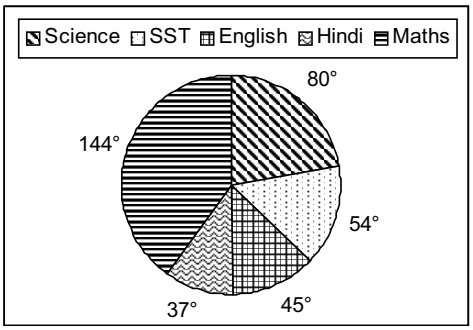
Tommen



Arya



Sansa



502. If the minimum percentage required to pass in any subject is 33.33 and it is also known that Arya passed in all the subjects, then what can be the minimum percentage that she can score in English?

(a) 30%

(b) 40%

(c) 50%

(d) 60%

503. If the pattern of the examination is changed in such a way that the maximum marks for Maths is double of the maximum marks for any other subject (the breakup of marks remaining unchanged), then what is the ratio of maximum marks, in all the subjects put together, which Geoffrey can score to the maximum marks, in all the subjects put together, which Tommen can score?

(a) 4 : 3

(b) 1 : 1

(c) 3 : 4

(d) 1 : 2

504. If the pattern of the examination is changed in such a way that the maximum marks for Maths is double of the maximum marks for any other subject (the breakup of marks remaining unchanged), then what is the ratio of maximum marks, in all the subjects put together, which Sansa can score after the change in pattern and before the change in pattern?

(a) 35 : 54

(b) 3 : 2

(c) 2 : 3

(d) 9 : 5

505. If the marks scored by Geoffrey in Maths is maximum possible then what is the average of percentage marks scored by him in all the subjects?

(a) 50%

(b) 25%

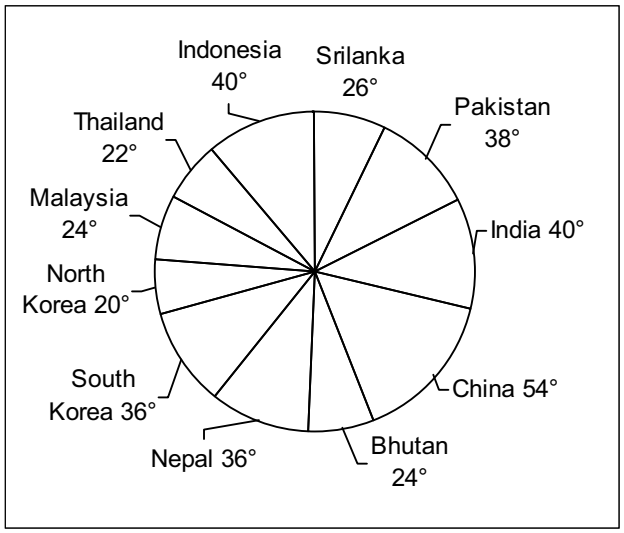
(c) 10%

(d) 12.5%

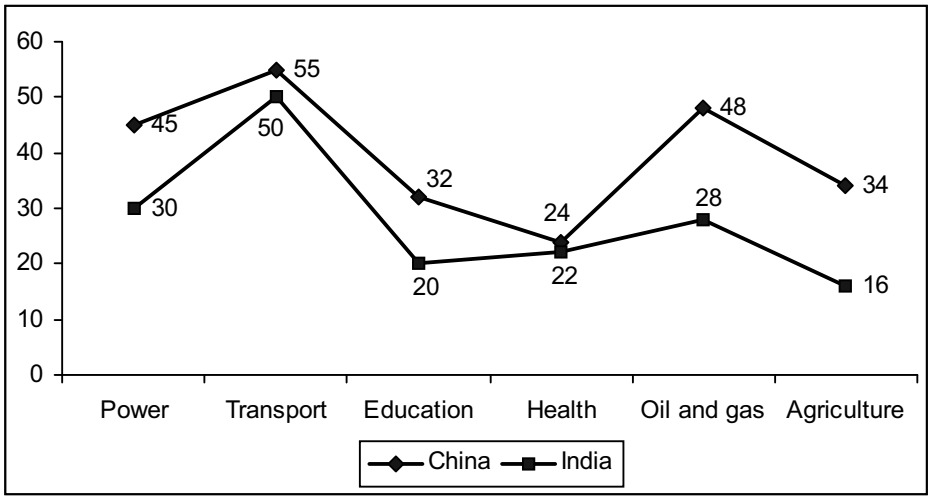
2015

Directions for questions 506 to 509 : Answer the questions on the basis of the information given below.

The following pie chart gives the distribution of the total loans disbursed by ADB in 2012 among eleven Asian countries.
Total amount of loans disbursed = Rs. 7200 Cr



The following line graph gives the percentage contribution of loan from ADB in the total investment made in different sectors in the same year by India and China.



For both China and India, the loan received from ADB was utilized in the given sectors only.

506. If the total investment in Education sector in China was 60% higher than that in India, then what is the ratio of A and B, where

A : The percentage of loan from ADB invested in Education sector by China

B : The percentage of loan from ADB invested in Education sector by India

(a) 256 : 135

(b) 256 : 189

(c) 256 : 225

(d) Cannot be determined

507. The amount of loan invested in Transport sector by China was equal to 60% of the total loan given by ADB to Malaysia. The amount of loan invested in Transport sector by India was equal to 60% of the total loan given by ADB to North Korea. The total investment made in Transport sector by India was approximately what percent of that made by china?

(a) 75.76

(b) 91.67

(c) 80.80

(d) 81.81

508. If the total investments made in Education, Health and Agriculture sectors in India in 2012 was Rs. 150 cr., Rs. 120 cr and Rs. 400 cr. respectively, then the amount of ADB loan invested by India in these three sectors constitute what percentage of the total loan granted to India by ADB?

(a) 15.05% (b) 18.85%

(c) 12.33% (d) 16.66%

509. The total loan invested in Power, Transport and Education sectors by India was 500 cr. What was the maximum possible investment (in Rs. crore) in these three sectors made by India?

[The loan amount invested in all of these three sectors is a multiple of 30 cr]

(a) 2000 (b) 2100

(c) 2360 (d) 2400

Directions for questions 510 to 513 : Answer the questions on the basis of the information given below.

The total electricity production of five thermal power plants in India in year 2009-10 is given in the table below. Capacity utilization for any power plant is the percentage of maximum capacity, of that power plant, which is used for power production.

Maximum capacity (100%) = Capacity utilization (In %) + Unutilized production (In %)

Power Plant	Capacity Utilization	Unutilized production (In MW units)	Number of units sold as a percentage of maximum capacity
A	93%	595	89%
B	88%	750	87%
C	92.50%	750	90%
D	86%	1190	85%
E	81%	1805	80%

	Production Cost (In Rs. / kw units)	Selling Price (In Rs. / Kw units)
A	2.1	3.4
B	2.25	3.2
C	2.0	2.9
D	2.35	3.0
E	2.2	2.8

Total cost of production = Units Produced (in Kw) × Production Cost (in Rs. / Kw units)

Total Revenue = Units Sold (in Kw) × Selling price (in Rs. / Kw units)

$$\text{Profitability} = \left(\frac{\text{Revenue} - \text{Cost}}{\text{Cost}}\right) \times 100\%$$

510. In the given year, if capacity of power plant B had 12.5% of the total power capacity of India, and thermal power capacity of India is 95% of its total power capacity. The total capacity of these 5 thermal power plants was what percentage of the total thermal power capacity of India?

(a) 91.92% (b) 85.5%

(c) 77.73% (d) 90%

511. Which of the following represents the decreasing order of units sold by the given 5 power plants?

(a) E > C > D > A > B (b) C > E > A > D > B

(c) E > C > A > D > B (d) C > A > E > B > D

512. Which power plant had the third highest profitability?

(a) A (b) C

(c) D (d) B

513. Which of the following statements is true?

(a) The power plant with the lowest percentage capacity utilization sold minimum number of units.

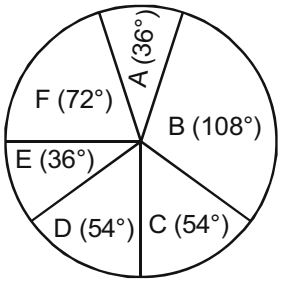
(b) The power plant with the second highest per unit selling price sold minimum number of units.

(c) The power plant B had the second lowest capacity.

(d) The total capacity of E was more than 10,000 MW units.

Directions for questions 514 to 517: Answer the questions on the basis of the information given below.

The pie chart given below shows the break-up of production cost of six products – A through F – of Zen Private Ltd. in year 2011. The total production cost was Rs. 250 Cr.



Each of the six products is produced in two varieties- Type P and Type Q. The ratio of the units produced for each product and the profit percentage on selling them is given in the table below.

Product	Ratio of production		Profit Percentage	
	Type P	Type Q	Type P	Type Q
A	3	2	15	30
B	4	3	25	20
C	5	6	15	20
D	1	1	15	10
E	5	3	25	20
F	5	4	20	15

Also for each product, the cost of production per item of Type P and Type Q varieties are in the ratio 4 : 5.

514. For how many of the six products, is the profit made on items of type Q not more than the profit made on items of type P?

515. For which product is the ratio of total profit to total production cost, the lowest?

(a) B (b) C

(c) D (d) F

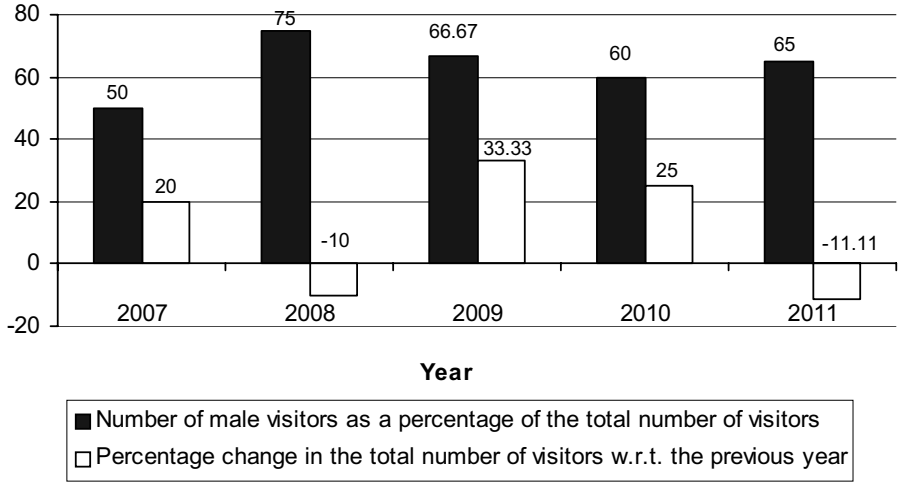
516. For how many products, overall profit percentage is more than 20%?

517. The nearest integer to the total cost (In Rs. Cr.) incurred in producing type A of products A, D & F is

2016

Directions for questions 518 to 521: Answer the questions on the basis of the information given below.

The bar graph given below shows the data related to the number of people visiting a famous museum named 'Ancient Wax' in Putlabad from the year 2007 to the year 2011.



518. If the total number of visitors in the year 2006 was 46850, what was the number of female visitors in the year 2011?

519. How many of the following statement(s) is/are true?

(i) The only year in the given period when the number of female visitors decreased as compared to the previous year was 2008.

(ii) There was a growth of 40% in the number of male visitors from 2008 to 2009.

(iii) There was a growth of 50% in the number of female visitors from 2009 to 2010.

(iv) The year 2008 onwards, there was an increase each year in the number of male visitors as compared to the previous year.

520. The difference between the number of male visitors and the number of female visitors in a year is called "Gender Gap". For which of the following pairs of years is Gender Gap equal?

Fill 1 if "your answer is 2008 and 2011"

Fill 2 if "your answer is 2009 and 2010"

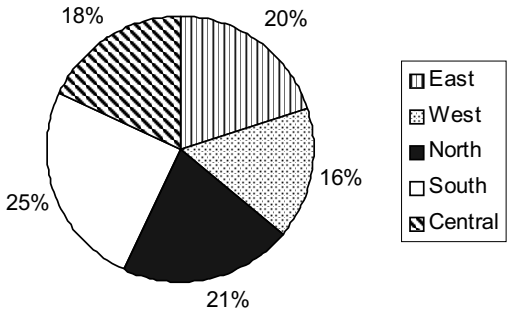
Fill 3 if "your answer is 2008 and 2010"

Fill 4 if "your answer is 2009 and 2011"

521. If the number of male visitors in 2010 was 14796, what was the total number of visitors in 2007?

Directions for questions 522 to 525: Answer the questions on the basis of the information given below.

The pie chart given below shows the percentage break-up of students who participated from five different regions in the Sports Week organized by Dharma Public Association in the year 2011.



The partially filled-in table given below shows the number of students who participated from the five regions in the six events conducted during the Sports Week.

Activity	East	West	North	South	Central
Swimming	23		42	64	19
Lawn Tennis	45	27		46	31
Cycling	39		41	18	45
Badminton	52	49	23	38	
Hockey	21	24	37		25
Football		16	32	34	30

Note:

(i) Each student who came to the Sports Week participated in exactly one of the six events.

(ii) At least one student from each region participated in each of the six events.

(iii) Six cells in the table are left blank. The sum of the six missing values is 279.

522. Which of the following is not a possible ratio of the number of students who participated from the West region in Swimming and Cycling respectively?

(a) 7 : 8

(b) 3 : 5

(c) 5 : 7

(d) 1 : 9

523. Which of the six events witnessed the highest participation from the students of the five regions put together?

(a) Swimming (b) Cycling

(c) Badminton (d) Cannot be determined

524. The number of students who participated in Badminton from central region was what percentage of the number of students who participated in Football from East region?

(a) 80 (b) 120

(c) 125 (d) 75

525. If the number of students who participated in Swimming from West region was more than that of those who participated in Cycling from West and was also multiple of 5, what is the sum of all the possible values of the product of the number of students who participated in Swimming from West and that of those who participated in Hockey from South?

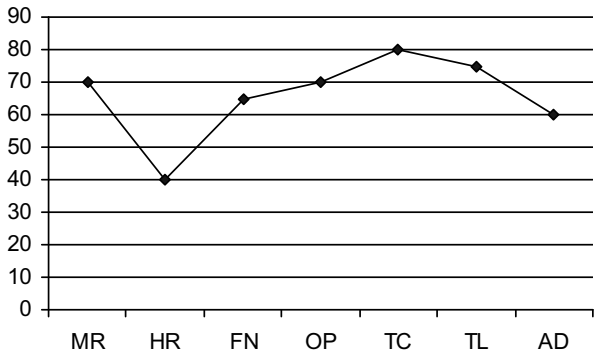
(a) 21375 (b) 18875

(c) 20325 (d) 16875

Directions for questions 526 to 529: Answer the questions on the basis of the information given below.

In an organization, there are seven departments – MR, HR, FN, OP, TC, TL and AD. The table given below shows the number of employees in a few combinations of four departments taken together. The line graph shows the percentage of male employees in the mentioned departments.

Combination of departments	Number of employees
MR, HR, FN, OP	870
TC, TL, AD, MR	600
HR, FN, OP, TC	780
TL, AD, MR, HR	670
FN, OP, TC, TL	630
AD, MR, HR, FN	850
OP, TC, TL, AD	640



526. What is the ratio of the number of female employees in HR department to the number of male employees in TC department?

(a) 19 : 16 (b) 27 : 19

(c) 19 : 27 (d) 11 : 5

527. In which department is the difference between the number of male employees and the number of female employees the highest?

(a) FN (b) TC

(c) OP (d) MR

528. The number of male employees in MR, FN and AD departments taken together is approximately what percent more than the number of female employees in HR, OP and AD departments taken together?

(a) 43 (b) 57

(c) 52 (d) 63

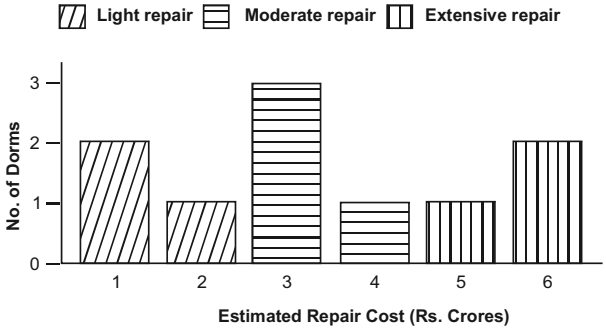
529. What is the absolute difference between the total number of males and that of females across the seven departments?

(a) 347 (b) 350

(c) 351 (d) 343

2017

Question Numbers : (530 to 533) : At a management school, the oldest 10 dorms, numbered 1 to 10, need to be repaired urgently. The following diagram represents the estimated repair costs (in Rs. Crores) for the 10 dorms. For any dorm, the estimated repair cost (in Rs. Crores) is an integer. Repairs with estimated cost Rs. 1 or 2 Crores are considered light repairs, repairs with estimated cost Rs. 3 or 4 are considered moderate repairs and repairs with estimated cost Rs. 5 or 6 Crores are considered extensive repairs.



Further, the following are known:

1. Odd-numbered dorms do not need light repair; even-numbered dorms do not need moderate repair and dorms, whose numbers are divisible by 3, do not need extensive repair.
2. Dorms 4 to 9 all need different repair costs, with Dorm 7 needing the maximum and Dorm 8 needing the minimum.

530. Which of the following is NOT necessarily true?

(1) Dorm 1 needs a moderate repair

(2) Dorm 5 repair will cost no more than Rs. 4 Crores

(3) Dorm 7 needs an extensive repair

(4) Dorm 10 repair will cost no more than Rs. 4 Crores

531. What is the total cost of repairing the odd-numbered dorms (in Rs. Crores)?

532. Suppose further that:

(1) 4 of the 10 dorms needing repair are women's dorms and need a total of Rs.20 Crores for repair

(2) Only one of Dorms 1 to 5 is a women's dorm.

What is the cost for repairing Dorm 9 (in Rs. Crores)?

533. Suppose further that:

(1) 4 of the 10 dorms needing repair are women's dorms and need a total of Rs.20 Crores for repair.

(2) Only one of Dorms 1 to 5 is a women's dorm.

Which of the following is a women's dorm?

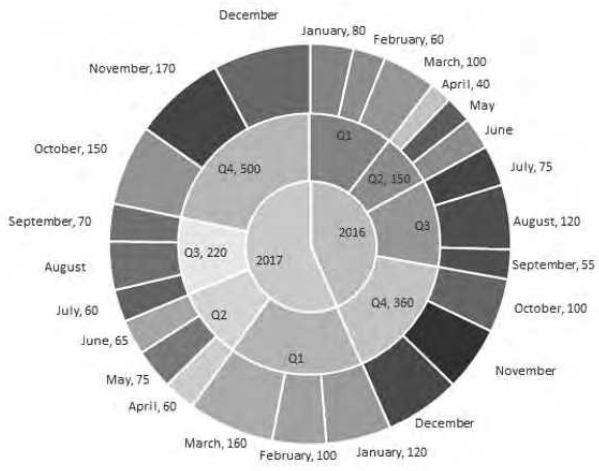
(a) Dorm 2 (b) Dorm 5

(c) Dorm 8 (d) Dorm 10

2018 Slot 1

Question Numbers (534 to 437) :

The multi-layered pie-chart below shows the sales of LED television sets for a big retail electronics outlet during 2016 and 2017. The outer layer shows the monthly sales during this period, with each label showing the month followed by sales figure of that month. For some months, the sales figures are not given in the chart. The middle-layer shows quarter-wise aggregate sales figures (in some cases, aggregate quarter-wise sales numbers are not given next to the quarter). The innermost layer shows annual sales. It is known that the sales figures during the three months of the second quarter (April, May, June) of 2016 form an arithmetic progression, as do the three monthly sales figures in the fourth quarter (October, November, December) of that year.



534. What is the percentage increase in sales in December 2017 as compared to the sales in December 2016?

(a) 38.46 (b) 28.57

(c) 50.00 (d) 22.22

535. In which quarter of 2017 was the percentage increase in sales from the same quarter of 2016 the highest?

(a) Q1 (b) Q2

(c) Q3 (d) Q4

536. During which quarter was the percentage decrease in sales from the previous quarter's sales the highest?

(a) Q1 of 2017

(b) Q4 of 2017

(c) Q2 of 2016

(d) Q2 of 2017

537. During which month was the percentage increase in sales from the previous month's sales the highest?

(a) March of 2016 (b) October of 2016

(c) October of 2017 (d) March of 2017

Question Numbers (538 to 541) :

A company administers a written test comprising of three sections of 20 marks each - Data Interpretation (DI), Written English (WE) and General Awareness (GA), for recruitment. A composite score for a candidate (out of 80) is calculated by doubling her marks in DI and adding it to the sum of her marks in the other two sections. Candidates who score less than 70% marks in two or more sections are disqualified. From among the rest, the four with the highest composite scores are recruited. If four or less candidates qualify, all who qualify are recruited.

Ten candidates appeared for the written test. Their marks in the test are given in the table below. Some marks in the table are missing, but the following facts are known:

1. No two candidates had the same composite score.
2. Ajay was the unique highest scorer in WE.
3. Among the four recruited, Geeta had the lowest composite score.
4. Indu was recruited.
5. Danish, Harini, and Indu had scored the same marks the in GA.
6. Indu and Jatin both scored 100% in exactly one section and Jatin's composite score was 10 more than Indu's.

Candidate	marks out of 20		
	DI	WE	GA
Ajay	8		16
Bala		9	11
Chetna	19	4	12
Danish	8	15	
Ester	12	18	16
Falak	15	7	10
Geeta	14		6
Harini	5		
Indu		8	
Jatin		16	14

538. Which of the following statements MUST be true?

1. Jatin's composite score was more than that of Danish.
2. Indu scored less than Chetna in DI.
3. Jatin scored more than Indu in GA.

(a) Only 2 (b) Only 1

(c) Both 1 and 2 (d) Both 2 and 3

539. Which of the following statements MUST be FALSE?

(a) Bala scored same as Jatin in DI

(b) Harini's composite score was less than that of Falak

(c) Bala's composite score was less than that of Ester

(d) Chetna scored more than Bala in DI

540. If all the candidates except Ajay and Danish had different marks in DI, and Bala's composite score was less than Chetna's composite score, then what is the maximum marks that Bala could have scored in DI?

541. If all the candidates scored different marks in WE then what is the maximum marks that Harini could have scored in WE?

2018 Slot 2

Question Numbers: (542 to 545):

There are only four brands of entry level smartphones called Azra, Bysi, Cxqi, and Dipq in a country.

Details about their market share, unit selling price, and profitability (defined as the profit as a percentage of the revenue) for the year 2016 are given in the table below:

Brand	Market share (%)	Unit Selling Price (Rs.)	Profitability
Azra	40	15,000	10
Bysi	25	20,000	30
Cxqi	15	30,000	40
Dipq	20	25,000	30

In 2017, sales volume of entry level smartphones grew by 40% as compared to that in 2016. Cxqi offered a 40% discount on its unit selling price in 2017, which resulted in

a 15% increase in its market share. Each of the other three brands lost 5% market share. However, the profitability of Cxqi came down to half of its value in 2016. The unit selling prices of the other three brands and their profitability values remained the same in 2017 as they were in 2016.

542. The brand that had the highest revenue in 2016 is:
(a) Dipq (b) Cxqi
(c) Azra (d) Bysi

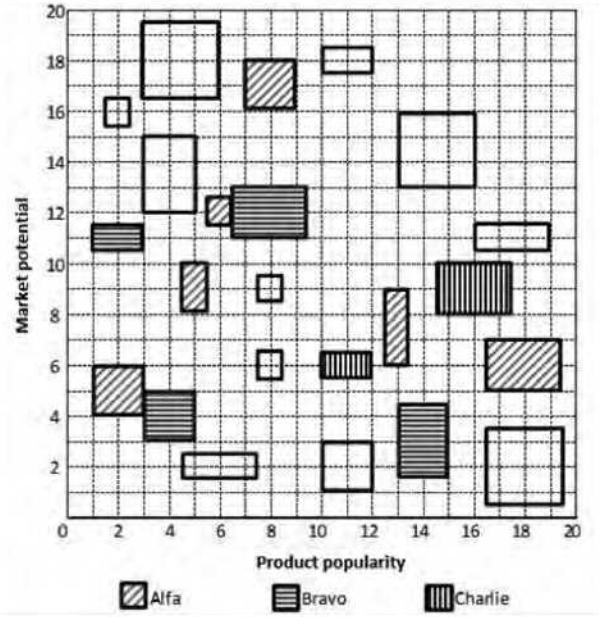
543. The brand that had the highest profit in 2016 is:
(a) Cxqi (b) Azra
(c) Dipq (d) Bysi

544. The brand that had the highest profit in 2017 is:
(a) Azra (b) Bysi
(c) Dipq (d) Cxqi

545. The complete list of brands whose profits went up in 2017 from 2016 is:
(a) Azra, Bysi, Cxqi (b) Azra, Bysi, Dipq
(c) Cxqi, Azra, Dipq (d) Bysi, Cxqi, Dipq

Question Numbers: (546 to 549):

Each of the 23 boxes in the picture below represents a product manufactured by one of the following three companies: Alfa, Bravo and Charlie. The area of a box is proportional to the revenue from the corresponding product, while its centre represents the Product popularity and Market potential scores of the product (out of 20). The shadings of some of the boxes have got erased.



The companies classified their products into four categories based on a combination of scores (out of 20) on the two parameters – Product popularity and Market potential as given below:

	Promising	Blockbuster	Doubtful	No-hope
Product popularity score	>10	>10	≤10	≤10
Market potential score	>10	≤10	>10	≤10

The following facts are known:

1. Alfa and Bravo had the same number of products in the Blockbuster category.
2. Charlie had more products than Bravo but fewer products than Alfa in the No-hope category.
3. Each company had an equal number of products in the Promising category.
4. Charlie did not have any product in the Doubtful category, while Alfa had one product more than Bravo in this category.
5. Bravo had a higher revenue than Alfa from products in the Doubtful category.
6. Charlie had a higher revenue than Bravo from products in the Blockbuster category.
7. Bravo and Charlie had the same revenue from products in the No-hope category.
8. Alfa and Charlie had the same total revenue considering all products.

546. Considering all companies' products, which product category had the highest revenue?
(a) Promising (b) Blockbuster
(c) Doubtful (d) No-hope

547. Which of the following is the correct sequence of numbers of products Bravo had in No-hope, Doubtful, Promising and Blockbuster categories respectively?
(a) 1, 3, 1, 2 (b) 1, 3, 1, 3
(c) 3, 3, 1, 2 (d) 2, 3, 1, 2

548. Which of the following statements is NOT correct?
(a) Bravo and Charlie had the same revenues from No-hope products
(b) The total revenue from No-hope products was less than the total revenue from Doubtful products
(c) Alfa's revenue from Blockbuster products was the same as Charlie's revenue from Promising products
(d) Bravo's revenue from Blockbuster products was greater than Alfa's revenue from Doubtful products

549. If the smallest box on the grid is equivalent to revenue of Rs.1 crore, then what approximately was the total revenue of Bravo in Rs. crore?
(a) 34 (b) 40
(c) 30 (d) 24

ANSWERS

LOGIC BASED DI

1. (c)	**2.** (d)	**3.** (a)	**4.** (b)	**5.** (a)	**6.** (d)	**7.** (c)	**8.** (a)	**9.** (c)	**10.** (c)
11. (c)	**12.** (b)	**13.** (c)	**14.** (b)	**15.** (a)	**16.** (d)	**17.** (b)	**18.** (b)	**19.** (d)	**20.** (c)
21. (d)	**22.** (a)	**23.** (d)	**24.** (b)	**25.** (c)	**26.** (d)	**27.** (c)	**28.** (d)	**29.** (a)	**30.** (a)
31. (b)	**32.** (a)	**33.** (c)	**34.** (a)	**35.** (c)	**36.** (c)	**37.** (b)	**38.** (a)	**39.** (d)	**40.** (b)
41. (c)	**42.** (a)	**43.** (c)	**44.** (a)	**45.** (b)	**46.** (d)	**47.** (a)	**48.** (b)	**49.** (d)	**50.** (a)
51. (b)	**52.** (b)	**53.** (d)	**54.** (c)	**55.** (a)	**56.** (c)	**57.** (b)	**58.** (c)	**59.** (c)	**60.** (c)
61. (e)	**62.** (b & c)	**63.** (a)	**64.** (d)	**65.** (c)	**66.** (a)	**67.** (d)	**68.** (e)	**69.** (e)	**70.** (d)
71. (b)	**72.** (c)	**73.** (b)	**74.** (d)	**75.** (e)	**76.** (d)	**77.** (c)	**78.** (b)	**79.** (c)	**80.** (c)
81. (b)	**82.** (d)	**83.** (e)	**84.** (e)	**85.** (d)	**86.** (a)	**87.** (d)	**88.** (c)	**89.** (b)	**90.** (d)
91. (*)	**92.** (*)	**93.** (*)	**94.** (*)	**95.** (*)	**96.** (*)	**97.** (d)	**98.** (a)	**99.** (b)	**100.** (c)
101. (d)	**102.** (b)	**103.** (d)	**104.** (c)	**105.** (d)	**106.** (d)	**107.** (d)	**108.** (b)	**109.** (a)	**110.** (c)
111. (b)	**112.** (d)	**113.** (c)	**114. 10**	**115. 2**	**116. 2**	**117. 22**	**118.** (d)	**119.** (c)	**120.** (d)
121. (a)	**122.** (**c**)	**123.** (**a**)	**124.** (**b**)	**125.** (**a**)	**126.** (**b**)	**127.** (**c**)	**128.** (**b**)	**129.** (**a**)	**130.** (**c**)
131. (**d**)	**132.** (**d**)	**133.** (**a**)	**134.** (**c**)	**135.** (**2**)	**136.** (**b**)	**137.** (**20**)	**138.** (**d**)	**139.** (**4**)	**140.** (**3**)
141. (**d**)	**142.** (**d**)	**143.** (**d**)	**144.** (**b**)	**145.** (**d**)	**146.** (**b**)	**147.** (**3**)	**148.** (**48**)	**149.** (**b**)	**150.** (**1200**)
151. (**d**)	**152.** (**240**)	**153.** (**a**)							

CALCULATION BASED DI

1. (b)	**2.** (a)	**3.** (d)	**4.** (d)	**5.** (d)	**6.** (c)	**7.** (b)	**8.** (a)	**9.** (a)	**10.** (b)
11. (c)	**12.** (b)	**13.** (b)	**14.** (b)	**15.** (b)	**16.** (a)	**17.** (c)	**18.** (b)	**19.** (d)	**20.** (b)
21. (a)	**22.** (a)	**23.** (a)	**24.** (d)	**25.** (d)	**26.** (b)	**27.** (d)	**28.** (d)	**29.** (a)	**30.** (a)
31. (c)	**32.** (d)	**33.** (a)	**34.** (b)	**35.** (a)	**36.** (d)	**37.** (a)	**38.** (a)	**39.** (d)	**40.** (b)
41. (a)	**42.** (d)	**43.** (c)	**44.** (a)	**45.** (a)	**46.** (d)	**47.** (d)	**48.** (b)	**49.** (d)	**50.** (d)
51. (c)	**52.** (c)	**53.** (b)	**54.** (b)	**55.** (d)	**56.** (c)	**57.** (a)	**58.** (b)	**59.** (b)	**60.** (c)
61. (c)	**62.** (d)	**63.** (a)	**64.** (c)	**65.** (d)	**66.** (b)	**67.** (b)	**68.** (b)	**69.** (a)	**70.** (d)
71. (d)	**72.** (d)	**73.** (a)	**74.** (b)	**75.** (c)	**76.** (c)	**77.** (d)	**78.** (d)	**79.** (c)	**80.** (d)
81. (b)	**82.** (d)	**83.** (a)	**84.** (c)	**85.** (a)	**86.** (d)	**87.** (a)	**88.** (c)	**89.** (c)	**90.** (b)
91. (d)	**92.** (d)	**93.** (c)	**94.** (d)	**95.** (c)	**96.** (b)	**97.** (c)	**98.** (d)	**99.** (d)	**100.** (d)
101. (a)	**102.** (d)	**103.** (a)	**104.** (a)	**105.** (b)	**106.** (b)	**107.** (d)	**108.** (a)	**109.** (b)	**110.** (a)
111. (b)	**112.** (d)	**113.** (d)	**114.** (c)	**115.** (b)	**116.** (d)	**117.** (c)	**118.** (d)	**119.** (a)	**120.** (c)
121. (a)	**122.** (b)	**123.** (d)	**124.** (c)	**125.** (b)	**126.** (d)	**127.** (a)	**128.** (a)	**129.** (c)	**130.** (a)
131. (b)	**132.** (c)	**133.** (d)	**134.** (b)	**135.** (c)	**136.** (b)	**137.** (c)	**138.** (d)	**139.** (b)	**140.** (b)
141. (a)	**142.** (d)	**143.** (d)	**144.** (b)	**145.** (a)	**146.** (d)	**147.** (c)	**148.** (d)	**149.** (b)	**150.** (b)
151. (a)	**152.** (b)	**153.** (d)	**154.** (c)	**155.** (d)	**156.** (b)	**157.** (b)	**158.** (c)	**159.** (a)	**160.** (a)
161. (d)	**162.** (d)	**163.** (d)	**164.** (b)	**165.** (c)	**166.** (d)	**167.** (c)	**168.** (d)	**169.** (b)	**170.** (a)
171. (c)	**172.** (c)	**173.** (a)	**174.** (b)	**175.** (a)	**176.** (d)	**177.** (c)	**178.** (c)	**179.** (c)	**180.** (c)
181. (b)	**182.** (c)	**183.** (a)	**184.** (c)	**185.** (b)	**186.** (b)	**187.** (a)	**188.** (b)	**189.** (a)	**190.** (d)
191. (b)	**192.** (a)	**193.** (b)	**194.** (d)	**195.** (b)	**196.** (c)	**197.** (b)	**198.** (a)	**199.** (b)	**200.** (a)
201. (c)	**202.** (d)	**203.** (a)	**204.** (c)	**205.** (c)	**206.** (c)	**207.** (b)	**208.** (d)	**209.** (b)	**210.** (d)
211. (b)	**212.** (a)	**213.** (b)	**214.** (a)	**215.** (b)	**216.** (a)	**217.** (a)	**218.** (b)	**219.** (d)	**220.** (*)
221. (a)	**222.** (b)	**223.** (b)	**224.** (b)	**225.** (c)	**226.** (b)	**227.** (b)	**228.** (d)	**229.** (d)	**230.** (c)

231. (c) **232.** (c) **233.** (b) **234.** (a) **235.** (b) **236.** (d) **237.** (c) **238.** (a) **239.** (a) **240.** (d)
241. (b) **242.** (d) **243.** (c) **244.** (b) **245.** (a) **246.** (a) **247.** (b) **248.** (b) **249.** (a) **250.** (c)
251. (d) **252.** (b) **253.** (c) **254.** (b) **255.** (c) **256.** (a) **257.** (d) **258.** (a) **259.** (c) **260.** (b)
261. (a) **262.** (c) **263.** (d) **264.** (d) **265.** (a) **266.** (b) **267.** (b) **268.** (c) **269.** (d) **270.** (a)
271. (d) **272.** (d) **273.** (c) **274.** (a) **275.** (d) **276.** (b) **277.** (d) **278.** (c) **279.** (d) **280.** (a)
281. (b) **282.** (a) **283.** (b) **284.** (c) **285.** (b) **286.** (a) **287.** (c) **288.** (a) **289.** (a) **290.** (d)
291. (b) **292.** (d) **293.** (b) **294.** (b) **295.** (a) **296.** (c) **297.** (b) **298.** (a) **299.** (c) **300.** (c)
301. (a) **302.** (b) **303.** (a) **304.** (b) **305.** (a) **306.** (d) **307.** (b) **308.** (a) **309.** (c) **310.** (b)
311. (d) **312.** (a) **313.** (c) **314.** (d) **315.** (a) **316.** (c) **317.** (c) **318.** (b) **319.** (b) **320.** (b)
321. (b) **322.** (b) **323.** (d) **324.** (d) **325.** (b) **326.** (b) **327.** (b) **328.** (b) **329.** (d) **330.** (c)
331. (a) **332.** (c) **333.** (a) **334.** (b) **335.** (d) **336.** (b) **337.** (a) **338.** (a) **339.** (c) **340.** (b)
341. (a) **342.** (d) **343.** (b) **344.** (a) **345.** (d) **346.** (a) **347.** (c) **348.** (b) **349.** (c) **350.** (d)
351. (d) **352.** (d) **353.** (c) **354.** (a) **355.** T **356.** (b) **357.** (c) **358.** (c) **359.** (d) **360.** (d)
361. (a) **362.** (b) **363.** (a) **364.** (a) **365.** (d) **366.** (d) **367.** (c) **368.** (c) **369.** (c) **370.** (a)
371. (d) **372.** (b) **373.** (c) **374.** (d) **375.** (b) **376.** (c) **377.** (b) **378.** (d) **379.** (b) **380.** (d)
381. (b) **382.** (a) **383.** (c) **384.** (d) **385.** (a) **386.** (c) **387.** (d) **388.** (d) **389.** (a) **390.** (b)
391. (b) **392.** (d) **393.** (a) **394.** (c) **395.** (a) **396.** (b) **397.** (b) **398.** (c) **399.** (d) **400.** (c)
401. (c) **402.** (a) **403.** (b) **404.** (d) **405.** (a) **406.** (b) **407.** (c) **408.** (b) **409.** (d) **410.** (d)
411. (d) **412.** (a) **413.** (c) **414.** (a) **415.** (a) **416.** (d) **417.** (e) **418.** (c) **419.** (b) **420.** (a)
421. (e) **422.** (d) **423.** (b) **424.** (c) **425.** (e) **426.** (a) **427.** (b) **428.** (e) **429.** (a) **430.** (*)
431. (c) **432.** (a) **433.** (d) **434.** (b) **435.** (e) **436.** (c) **437.** (d) **438.** (a) **439.** (a) **440.** (d)
441. (c) **442.** (e) **443.** (e) **444.** (a) **445.** (a) **446.** (a) **447.** (c) **448.** (c) **449.** (b) **450.** (c)
451. (d) **452.** (c) **453.** (c) **454.** (b) **455.** (a) **456.** (c) **457.** (d) **458.** (c) **459.** (d) **460.** (b)
461. (c) **462.** (a) **463.** (b) **464.** (a) **465.** (c) **466.** (d) **467.** (d) **468.** (b) **469.** (b) **470.** (d)
471. (a) **472.** (d) **473.** (b) **474.** (c) **475.** (c) **476.** (b) **477.** (c) **478.** (c) **479.** (c) **480.** (a)
481. (d) **482.** (c) **483.** (b) **484.** (a) **485.** (c) **486.** (a) **487.** (b) **488.** (c) **489.** (a) **490.** (d)
491. (c) **492.** (c) **493.** (a) **494.** (b) **495.** (b) **496.** (a) **497.** (c) **498.** (a) **499.** (c) **500.** (d)
501. (a) **502.** (c) **503.** (b) **504.** (d) **505.** (a) **506.** (a) **507.** (b) **508.** (a) **509.** (c) **510.** (d)
511. (b) **512.** (d) **513.** (b) **514. 4** **515.** (c) **516. 3** **517. 55** **518.** 26236 **519.** 1 **520.** 4
521. 16440 **522.** (b) **523.** (c) **524.** (b) **525.** (d) **526.** (a) **527.** (c) **528.** (c) **529.** (b) **530.** (d)
531. (19) **532.** (3) **533.** (d) **534.** (b) **535.** (a) **536.** (d) **537.** (c) **538.** (c) **539.** (a) **540.** (13)
541. (14) **542.** (c) **543.** (a) **544.** (b) **545.** (b) **546.** (b) **547.** (a) **548.** (d) **549.** (a)

EXPLANATION

LOGIC BASED DI

For questions 1 to 4:

Please note that the best way to solve this question is by working backwards.

E.g. after the 4th round, each one of them had Rs.32. Since it is Vibha who lost in this round, all the remaining three must have doubled their share.

In other words, they would have had Rs.16 each after the 3rd round.

Since the increase is of Rs.16 in each one's share, i.e., Rs.48 overall which comes from Vibha's share, her share before the 4th round was (32 + 48) = Rs.80, after the 3rd round.

Working backwards in this manner, we can get the following table.

	Share of each			
	Suvarna	**Tara**	**Uma**	**Vibha**
4. Vibha	32	32	32	32
3. Uma	16	16	16	(32 + 48) = 80
2. Tara	8	8	(16 + 40 + 8 + 8) = 72	40
1. Suvarna	4	(8 + 4 + 36 + 20) = 68	36	20
Initial	(4 + 34 + 18 + 10) = 66	34	18	10

1. c Suvarna started with Rs.66.

2. d It was Vibha who started with the lowest amount, viz. Rs.10.

3. a It was Suvarna who started with the highest amount, viz. Rs.66.

4. b At the end of the second round, Uma had Rs.72.

5. a $A + B = \left(\frac{A+B}{2}\right) \times 2 = @(A, B) \times 2 = /(@(A, B), 2)$

6. d To find the average of A, B, C we seek to find A + B + C and then divide by 3.

For A + B, we first find the average of A and B and multiply it by 2, i.e. /(@(A, B), 2).

This expression can be seen only in option (d).

So let us check option (d).

$/(\times (@ (/ (@(B, A,), 2), C), 3), 2)$

$= /\left(\times \left(@\left(/\left(\frac{B+A}{2}, 2 \right), C \right), 3 \right), 2 \right)$

$= /\left(\times \left(@\left(\{B + A\}, C \right), 3 \right), 2 \right)$

$= /\left(\times \left(\frac{(B + A) + C}{2}, 3 \right), 2 \right)$

$= /\left(\frac{A + B + C}{2 \times 3}, 2 \right) = \frac{A + B + C}{3}$

7. c The only two possible combinations are:

Younger	Older
2	4
3	9

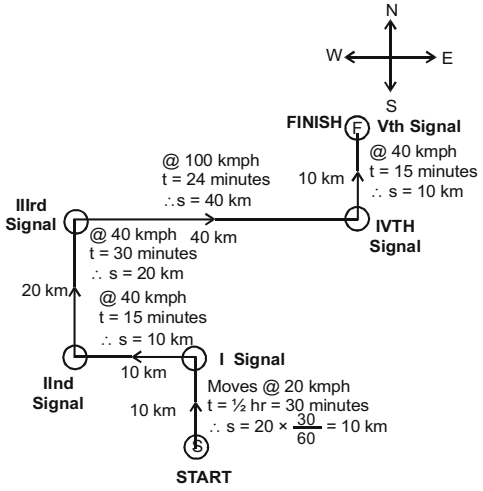
Cubes of natural numbers are 1, 8, 27, 64, ... Here, 64 and above are not possible as the age will go above 10 years.

If younger boy is 2 years old, then older boy is 4 years old. Then, Father's age is 24 years and Mother's age is $\frac{42}{2} = 21$ years.

Also, 24 – 21 = 3

$\therefore$ Age of younger boy = 2 years

8. a

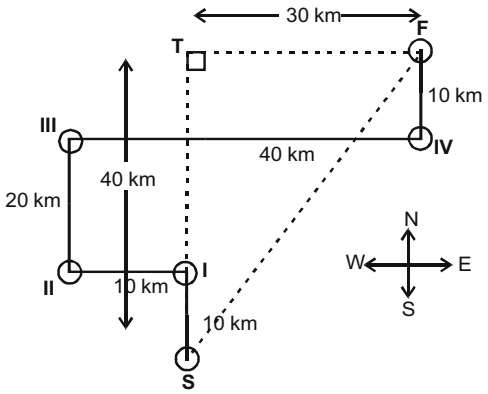


Note: s = Distance covered; v = Velocity (km/hr)

t = Time taken; s = v × t

The total distance travelled by the motorist from the starting point till last signal = 10 + 10 + 20 + 40 + 10 = 90 km.

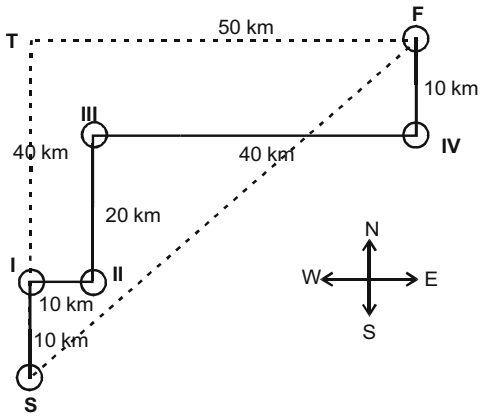
9. c



By Pythagoras' Theorem,

$SF = \sqrt{ST^2 + TF^2} = \sqrt{40^2 + 30^2} = \sqrt{2500} = 50$ km

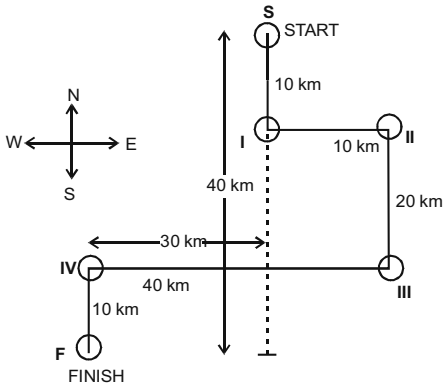
10. c In the case when 1st signal were 1 red and 2 green lights, the surface diagram will be as given below.



TF = 50 km; ST = 40 km

Considering the above figure, option (c) is correct, 50 km to the east and 40 km to the north.

11. c If the car was heading towards South from the start point, then the surface diagram will be as given below.



Hence, we can see that option (c) is correct.

12. b BC $\rightarrow$ AC $\rightarrow$ AAC = 0

13. c $BD \xrightarrow{0} AE \xrightarrow{95.2} AAB$

$\therefore$ Least cost of sending one unit from any refinery to AAB

= 0 + 95.2 = 95.2.

14. b BB $\rightarrow$ AB $\rightarrow$ AAG = 311.1

Same as above.

15. a First we will have to check the minimum cost for receiving at AAA. This is 0 for AE. But, BB to AE is very high. Next is AC [314.5]. BB to AC is 451.1. After AC, the others are high.

Hence, 314.5 + 451.1 = 765.6 is the least cost.

16. d Number of refineries = 6

Number of depots = 7

Number of districts = 9

Therefore, number of possible ways to send petrol from any refinery to any district = 6 × 7 × 9 = 378.

17. b The highest cost is for the route

BE $\rightarrow$ AE $\rightarrow$ AAH = 2193.0

18. b Only R9 is that region which produces medium quality of crop – 2 and low quality of crop – 4.

19. d Statement (a) is not satisfied by R9.

Statement (b) is not satisfied by R3.

Statement (c) is incorrect as there are six such regions R1, R2, R3, R4, R9 and R11.

Statement (d) is correct.

20. c Three regions namely R9, R10 and R11.

21. d From statement A, we know only the number of goals made by India is the last 5 minutes. But, as we don't know what the opponent team did in the last 5 minutes, we can't conclude anything. So statement A alone is not sufficient.

Similarly, statement B does not talk about the total number of goals scored by India. So statement B is not sufficient.

Using both the statements, we have two possibilities:

(I) If Korea had scored 3 goals 5 minutes before the end of the match India would have scored 1 goal. In the last 5 minutes as India made 3 goals and Korea on the whole made 3 goals, we can conclude that India had won the game.

(II) If Korea had scored 3 goals 5 minutes before the end of the match, India would have scored zero goals. In the last 5 minutes, as India made 3 goals and Korea on the whole made 3 goals, we can say the match was drawn.

Hence, we cannot answer the question even boy using both the statements together.

For questions 22 and 23:

Congress – Thursday

BJP – Friday

SP – Thursday

BSP – Friday

CPM – Friday

22. a Congress procession can only be allowed on Thursday.

23. d According to the data above, statement (d) is not true.

For questions 24 to 28:

If a person copies from one source, he must have the same blank answers as the source and exactly one wrong answer more than the source (as the copier has introduced one wrong answer on his own). If the person copies from two sources, the distinct wrong answers from the two sources would be left blank by the copier and the same wrong answers in the two sources would be copied as it is.

24. b A and D have only one source since they have only one wrong answer each.

C may have copied from only one source i.e. I and hence, only B has two sources.

25. c I did it before C since 27 is the wrong choice for I. Similarly, A, D and E made keys before C. Hence, 4 people made their keys before C.

26. d Both G and H can't be sources to any of F, B or I and hence, (d) is the correct option.

27. c F introduced wrong answer to question 14, because nobody else has done question 14 wrong.

28. d A, D and G have one distinct wrong answer and no blank answers. So they must have the same source. E and H also have a common wrong answer and no blanks.

Hence, both the groups had identical sources.

For questions 29 and 30:

G + 8 = A

D + R = 37

J = D + 8

A = D + 5

A + G = 40

Solving the above equations, we get

2G = 32, G = 16, A = 24

D = 19, J = 27, R = 18

29. a

30. a D + J = 46

For questions 31 to 33:

Four of the amounts spent by the five women are Rs.2234, Rs.1193, Rs.1340 ad Rs.2517.

Two cases arise:

(i) The lowest amount spent is Rs.1193(by Chellamma):

Then, the fifth amount will be Rs(1193 + 1378) = Rs.2571, which will then be the highest amount and is spent by Shahnaz. As Archana arrived before Chellamma, so she must have spent Rs.2234. This implies Helen spent Rs.2517 and Dhenuka spent Rs.1340, which is a contradiction.

Hence, this case is not possible.

(ii) The highest amount spent is Rs.2517 (by Shahnaz):

Then the fifth amount will be Rs.(2517 – 1378) = Rs.1139. Since it is the lowest amount, it will be spent by Chellamma. Further analysis leads to the following table:

Order of arrival	1	2	3	4	5
Name	Archana	Chellamma	Dhenuka	Helen	Shahnaz
Amount spent	Rs.2234	Rs.1139	Rs.1193	Rs.1340	Rs.2517

For questions 34 to 36:

From statement (i), possible number of vadas consumed by Ignesh is 6, being the only multiple of 3.Therefore, another person had 4 idlis and 2 vadas.

From statement (vii), Bimal had (6 – 2) = 4 vadas.

Using these inferences and statements (ii), (iii) and (vi), we get that Bimal, Sandeep and Mukesh do not have chutney, while Ignesh and Daljit consume cuhutney.

From (iii) and (iv), Sandeep has only one idli and no vada.

From (vii), Bimal has two more idlis than Ignesh. This implies that Bimal can have either 6 or 8 idlis. If Bimal had 6 idlis, then Ignesh had 4 idlis. This contradicts statement (i). Therefore, Bimal had 8 idlis and Ignesh had 6 idlis.

Mukesh has half the number of idlis as one other person and the only number satisfying this is 4. Therefore, he must have 2 vadas.

These inferences can be summarised in the table below:

	Idli	Vada	Chutney
Ignesh	6	6	Yes
Bimal	8	4	No
Sandeep	1	0	No
Mukesh	4	2	No
Daljit	5	1	Yes

37. b If Ram tossed the coin x number of times, then from statement A, we get the equation 10 + x – 100 = 50. Thus, x = 140.

From statement II individually, we have x > 138.

Thus, we are sure that he has paid up more than 148. If he incurs a loss of only Rs. 50, the game has to end normally. Thus, he must have played 150 shots and got first 138 as tails and 139 and 140 throws as heads. With no other scenario, a loss of just Rs.50 and 138 tails will show up.

38. a GPA of Preeti = 3.2

i.e., $\frac{F+D+x+D+y}{5} = 3.2$

$\Rightarrow$ 0 + 2 + x + 2 + y = 16

$\Rightarrow$ x + y = 12

The only possible combination is A, A.

Hence, Preeti obtained A grade in Statistics.

39. d Total points scored by Tara = 2.4 × 5 = 12

She scored same grade in three of the subjects, so her score is of the form 3x + y + z = 12

She cannot have scored 3 A's as her total points will exceed 12.

She can score 3 B's and 2 F's which will make her total points 3 × 4 + 2 × 0 = 12.

She cannot score 3 C's as the points in remaining two will be 12 – 3 × 3 = 3 and only possible breakup is (3, 0). This will contradict the fact that she had same grade in only three courses.

For a similar reason, she cannot score 3 D's.

She cannot score 3 F's, because for the remaining two courses she has to amass 12 points which is possible if she score A in both – a contradiction.

Hence, Tara could have scored a B or F grade in Operations.

40. b GPA of Gowri is 3.8

i.e. 3 + 3 + 6 + x + 4 = 3.8 × 5

16 + x = 19

x = 3

So in Strategy, Gowri's grade is C.

Rahul's grade in strategy = (4.2 × 5) – 15 = 6, i.e., A.

Fazal's grade in strategy = (2.4 × 5) – 8 = 4, i.e., B.

Hence, Gowri's grade will be higher than that of Hari.

41. c As Fazal's GPA = 2.4

So D + F + B + X + D = 2.4 × 5

$\Rightarrow$ 2 + 0 + 4 + X + 2 = 12

$\Rightarrow$ X = 4

So his grade in Strategy is B.

So grade of Utkarsh in Marketing is also B.

So for Utkarsh, Y + B + F + C + A = 3 × 5

$\Rightarrow$ Y + 4 + 0 + 3 + 6 = 15

$\Rightarrow$ Y = 2

So grade of Utkarsh in Finance = D.

For questions 42 to 45:

On day 3, there were 2 visitors from UK and 1 from USA. On the same day, the site was visited by 2 persons from University 4 and 1 from University 6. So University 4 is located in UK and University 6 is in USA.

Similar reasoning for day 2 gives us the conclusion that University 3 is located in Netherlands and University 8 is in India.

On day 1, the number of visitors from USA is 1 and that from University 6 is 1. University 6 is in USA (derived above), which implies no other university is in USA.

The number of visitors from India on day 1 is 1. Also, no visitor from University 8, which is in Idia has visited the site on day 1. This implies that one of University 1 and University 5 is in India and the other in Netherlands. A similar logic gives us that one of University 2 and University 6 is in UK and the other in Canada.

46. d Thailand and Japan (Maximum difference of 4 ranks (5 – 1) = 4.

47. a China (Maximum difference of 2 between 2 parameter's 2)

48. b Japan (Maximum difference of 4.)

49. d Japan and Malaysia (Inferring from question 46)

50. a Rahul and Yamini.

51. b Gayatri, Urvashi and Zeena cannot attend more than one workshop.

52. b Anshul, Bushkant, Gayatri and Urvashi cannot attend any of the workshops.

53. d

1	16
2	15
3	14
4	13
5	12
6	**11**
7	**10**
8	**9**

Winners after round two would be 1, 2, 3, 4, 5, 11, 10, 9 for 8 rounds respectively. As Lindsay is number two, she will play Venus Williams in quarter finals.

54. c Elena is at number 6 and Serena is at number 8.

If they lose, then table would be:

1	9
2	7
3	11
4	5

Maria is at number 1 and she will play the player at number 9. i.e., Nadia Petrova.

55. a

1	32
2	**31**
3	30
4	**29**
5	28
6	**27**
7	26
8	**25**
9	24
10	**23**
11	22
12	**21**
13	20
14	**19**
15	18
16	**17**

Matches in bold letters had upsets.

Then, from the table, winners would be:

1, 31, 3, 29, 5, 27, 7, 25, 9, 23, 11, 21, 13, 19, 15 and 17.

So for the next round, table would look like:

1	17
31	15
3	19
29	13
5	21
27	11
7	23
25	9

Since, there was no upset in the second round, so the table in the next round would look like:

1	**9**
15	7
3	11
13	5

We are given Maria is in the semi-finals. As we are not sure what is the result of other games, table for the next round can be drawn as follows:

1	5/13
7/15	3/11

Hence, Anastasia will play with Maria Sharapova.

56. c

1	8
2	7
3	6
4	5

In this case, Kim Clijster will either not reach semi-finals or she will play Maria in semi-finals.

Hence, she cannot play Maria in finals.

For questions 57 to 60: The given information can be tabulated as follows:

States	Firm A	Firm B	Firm C	Firm D
UP	49	82	80	55
Bihar	69	72	70	65
MP	72	63	72	65
Total	190	217	222	185

57. b As Truthful Ltd. has the highest market share, so Truthful Ltd. can be A or C.

From neutral statement, either B and C are Aggressive and Honest or A and D are Aggressive and Honest.

According to statement 1, B is Profitable. Then, A and D are Aggressive and Honest.

Then, Honest's total revenue cannot be more than that of Profitable. Hence, statement 2 is false.

58. c According to statement 1, Aggressive is B. Then, Honest has to be C (as given in the neutral statement).

Then, statement 2 is also true as Honest Ltd's. lowest revenue is from Bihar.

59. c B is Honest according to statement 1.

Atmost one statement can be true as both give Aggressive and Honest as firm B and firm B cannot have two names.

60. c Profitable can be either A or D. Then, Aggressive and Honest have to be B and C. Hence, Truthful is D or A. For both A and D, lowest revenue is from UP.

Hence, (c) is the correct option.

For questions 61 to 65:

In this set, the fuel cost for each of the path is given. In addition, there are four toll collection junctions.

61. e No traffic flows on the street from D to T.

Now, we have fuel cost on different paths as

SAT : 9 + 5 = Rs. 14 + toll at junction A

SBAT : 2 + 2 + 5 = Rs. 9 + toll at junction B and A

SBCT : 2 3 + 2 = Rs. 7 + toll at junction B and C

SDCT : 7 + 1 + 2 = Rs. 10 + toll at junction D and C

Now, checking the options we find that toll at junction A is 0 or 1.

When toll is 0, fuel cost on SAT = 14 + 0 = Rs. 14

When toll is 1, fuel cost on SAT = 14 + 1 = Rs. 15

The fuel cost on all the paths should be equal.

Options (a), (b), (c) can be ruled out as in all these options toll at C and D add up to more than Rs. 5. As fuel cost on SDCT is Rs. 10 without toll, so with toll it cannot exceed Rs. 15 (i.e. toll of path SAT).

Option (d) is ruled out as in this option SAT comes out to be Rs. 14 and SDCT sums up to Rs.15.

So correct answer is option (e).

62. b & c

Note: Both the options b and c are correct.

Available routes are:

SAT $\rightarrow$ Rs. 14

SBAT $\rightarrow$ Rs. 9

SDCT $\rightarrow$ Rs. 10

SDT $\rightarrow$ Rs. 13

Now, fuel cost of SAT - fuel of SDT = 14 – 13 = Rs. 1.

Hence toll at junction D should be 1 more than the toll at A. So option (a), (d) and (e) are ruled out.

Now, fuel cost of SAT - fuel cost of SBAT = 14 – 9 = Rs. 5. So toll at junction B should be Rs. 5. So answer could be either (b) or option (c).

63. a Available paths considering no toll are

SAT $\rightarrow$ Rs. 14

SBCT $\rightarrow$ Rs. 7

SBAT $\rightarrow$ Rs. 9

SDCT $\rightarrow$ Rs. 10

SDT $\rightarrow$ Rs. 13

It is very likely that option (d) is selected. But, if all the five routes have the same cost, then there will be an equal flow on all the five routes i.e., 20% on each route. But, then the percentage of traffic. on

$S - A \rightarrow 20\%$

$S - B \rightarrow 40\%$ (As there are two routes involving S – B.)

$S - D \rightarrow 40\%$ (As there are two routes involving S – D.)

But, it is given that traffic on S – A = traffic on S – B = traffic on S – D.

64. d Available routes are

SAT → Rs. 14

SBAT → Rs. 9

SBCT → Rs. 7

SDCT → Rs. 10

SDT → Rs. 13

Fuel cost on path SAT - fuel cost on path SDT

= 14 - 13 = Rs. 1.

So the toll at junction D should be 1 more than toll at junction A. So option a and c are ruled out.

Fuel cost on path SAT - fuel cost on path SBCT

= 14 - 7 = Rs. 7.

So sum of toll at junction B and C should be 7 more than the toll at A. Hence, only option (d) matches.

65. c We have to find a path on which minimum cost is incurred and such that total traffic through B does not exceed 70%.

So option (e) is ruled out because we can send all the traffic through SDCT or SDT and meet all conditions.

Option (a) is also ruled out as in that case all traffic will be passed through SBCT [not possible as traffic at B can't be more than 70%]

Option (b) is also ruled out as it is possible only when toll at junction C is 2. In that case also all traffic will pass through B.

Option (c) can be the answer, when toll at junction B is 4 and toll at junction C is 0. Then SDCT will have toll equal to Rs. 10.

As Rs. 10 is less than Rs. 13, so option (d) is also ruled out.

Hence, option (c) is the correct choice.

66. a The diet should contain 10% minerals and only two ingredient contain 10% minerals namely O and Q.

Hence, only by mixing O and Q, a diet with 10% minerals can be formed.

Hence, there is only one way.

67. d None of the choices among (a), (b) and (c) can be used to form the diet with 10% fat and atleast 30% protein. For Q and S to form the diet with 10% fat and at least 30% protein, let us suppose that they are mixed in x : y ration. Then,

$$\frac{x(50)+y(0)}{x+y}=10$$

$\Rightarrow$ x : y = 1 : 4

$$\text{Cost per unit} = \frac{1(200)+4(100)}{5} = \text{Rs.}120$$

Similarly, for R and S, cost per unit = Rs. 200

$\therefore$ Cost per unit is lowest for Q and S.

68. e To make a diet with P, Q and S having atleast 60% carbohydrates, the proportion of P should be the maximum and the other two should be minimum to get the lowest per unit cost. Options (b) and (e) satisfies this but the lowest cost per unit can be achieved when P, Q and S are mixed in the proportion 4 : 1 : 1.

69. e As the ingredients are mixed in equal amounts, so we can take the average of the constituent percentage of the elements used.

Only option (e) satisfies all the conditions.

70. d For the shortest route, we have to consider the path A-C-F-J.

The table given below shows the distance and the corresponding price.

Path	Distance	Price
A-C	790	1350
C-F	410	430
F-J	970	1150
Total	**2170**	**2930**

Hence, the price for travelling by the shortest route is Rs. 2930.

71. b For the lowest price we have to consider the path A-H-J.

The table given below shows the distance and the corresponding price.

Path	Distance	Price
A-H	1950	1850
H-J	400	425
Total	**2350**	**2275**

If the company charges 5% below the minimum price of Rs. 2275 then it should charge 0.95 × 2275 = Rs. 2161

72. c If the airports C, D and H are closed, then the passenger must follow the path A-F-J for minimum price.

The table given below shows the distance and the corresponding price.

Path	Distance	Price
A-F	1345	1700
F-J	970	1150
Total	2315	2850

So the corresponding minimum price paid by a passenger is Rs. 2850.

73. b For minimum cost per km, we have to consider the path A-H-J

From solution of question 71, we know that the distance of path A-H-J is 2350 km and the price is Rs. 2275.

The price includes a margin of 10%.

So the minimum cost per km

$$= 2275 \times \frac{10}{11} \times \frac{1}{2350} = 0.88$$

74. d For minimum cost per km, again we have to consider the path A-H-J as illustrated in the solution of question 73.

The distance of path A-H-J is 2350 km.

75. e Statement A alone is not sufficient because it is not giving any information about the opponent. Statement B alone is also not sufficient because it is not giving any information regarding the performance of Mahindra & Mahindra in the second half. Even if both the statements are used together, we will get two cases:

M & M	0	1
Opponent	3	4

So in one case, match is drawn and in the other case, it is won by Mahindra & Mahindra.

Hence, the answer is (e)

For questions 76 to 77:

Raju bets on the horses as follows:

Red – Rs.3000 , White – Rs.2000

and Black – Rs.1000 = Total of Rs.6000

He makes no profit no loss in the game. So the possible ways of recovering his money (Rs.6000) is as follows:

Case (i): 3000 + 3(1000)

Case (ii): 2000 + 4(1000)

Case (iii): 3(2000) + 0

Case (a): A breakup of 3000 + 3(1000) can be arrived at if the Black horse finished at 2nd and the Red horse at 3rd positions.

Then the White horse is either on the 4th or 5th position.

	1st	2nd	3rd	4th	5th
I	Grey/ Spotted	Black	Red	White	Spotted/ Grey
II	Grey/ Spotted	Black	Red	Spotted/ Grey	White

Case (b): A breakup of 2000 + 4(1000) can be arrived at if the Black horse finished at 1st and the White horse at 3rd positions.

Then the Red horse is either on the 4th or 5th position.

	1st	2nd	3rd	4th	5th
I	Black	Grey/ Spotted	White	Red	Spotted/ Grey
II	Black	Grey/ Spotted	White	Spotted/ Grey	Red

Case (c): A breakup of 3(2000) + 0 can be arrived at if the White horse finished at 2nd position.

Then the Red and Black horses must have finished at the 4th and 5th positions, not necessary in that order.

	1st	2nd	3rd	4th	5th
I	Spotted/ Grey	White	Grey/ Spotted	Red/ Black	Black/ Red

76. d None of the cases has three horses between White and Red horses.

77. c If Grey came fourth, we consider cases (a) and (b). All the options except (c) can hold true for these cases. White horse can either be 2nd or 5th in the race.

78. b Since Bhama got calls from all colleges, she has to score marks in each section equal to at least the maximum of the cut-offs across colleges which means 45, 45, 46 & 45 in section A, B, C & D respectively. This makes her total to be 181 with which she will clear the overall cut-offs of all the institutes.

79. c Since we have to minimise the marks in a particular section, we will have to maximise the marks in other 3 sections. Let us assume that marks obtained in each of the three sections in which we are going to maximize the score, is equal to 50. Now, the lowest overall cut-off is 171 & second lowest is 175. Hence, Charlie must have scored at least 175 – (50 + 50 + 50) = 25 marks in the remaining section.

Let us confirm whether he can clear sectional cut-offs also with such a distribution. On seeing the sectional cut-offs, we conclude that they can be cleared with 50 marks each in section A, B & C and 25 marks in section D, which may enable Charlie to clear the sectional cut-off of section D for college 1, 2, 3 or 5. Hence, 25 is the correct answer.

80. c Since we have to maximize Aditya's marks, let us take the base values of 50 marks in each section and try to reduce that by minimum values to ensure he doesn't get any call. We notice that by reducing the marks obtained in section C to 41, we ensure colleges 1, 2, 3 & 5 are ruled out. Now for colleges 4 & 6, reducing the marks obtained in section D to 43, ensures these colleges are also ruled out. Please note that we are reducing the score to 1 less than the minimum cut-off across all colleges for that particular section.

In the other two sections A and B, Aditya may score 50 each. So the maximum possible aggregate marks = 50 + 50 + 41 + 43 = 184.

For questions 81 to 84:

The given basic information can be collated as below:

(i) Six teams – A, B, C, D, E, F.

(ii) Matches scheduled in two stages – I & II.

(ii) No team plays against the same team more than once.

(iv) No ties permitted.

As per the instructions given for stage – I, we can reach the following conclusions:

(a) As B lost at least one match, A won all the 3 matches.

(b) The two teams who lost all the matches cannot be A (as explained above), cannot be B (E lost to B), cannot be D (D won against C & F). Hence, the two teams must be C and F.

(c) F did not play against the top team (i.e. A).

We get the following table for stage – I.

(To be read from rows)

	A	B	C	D	E	F
A	X	W	W	W		
B	L	X			W	W
C	L		X	L	L	
D	L		W	X		W
E		L	W		X	W
F		L		L	L	X

As per the instructions given for Stage-II, we can reach the following conclusions.

(d) A lost both its matches against E and F.

(e) F won against A, hence is the bottom team

(out of C & F) which won both the matches

$\Rightarrow$ F won against C as well.

This also means that C lost both its matches against B and F.

(f) Apart from A and C, one more team lost both the matches in Stage-II.

That team can neither be E (A lost to E), nor B (as C lost to B), nor F (as F won both its matches).

Hence, the team must be D.

We get the following table for Stage-II.

(To be read from rows)

	A	B	C	D	E	F
A	X				L	L
B		X	W	W		
C		L	X			L
D		L		X	L	
E	W			W	X	
F	W		W			X

81. b E and F defeated A. **[Please note that in this question, options (a) and (e) were the same.]**

82. d B, E and F won both the matches in Stage-II.

83. e D and F won exactly two matches in the event.

84. e B and E have most wins, 4 each.

For questions 85 to 87:

Colour	Red/Blue	Blue/Red	Green	White
Name	Priya	Sonal	Qureshi	Rahul
Profession	Lawyer	Engineer	Doctor	Cricketer

For questions 88 to 90 :

As Subbu performed alone in the first slot on the second day, the bands could not have performed more than 5 times. So the number of performances given by the bands was either 4 or 5. If the number of performances given by the bands was 4, then each of the four artists would have given one performance. However, in that case the sum of the number of performances given by Mitti, Kehsanloy and Kumar respectively would be 3 (a prime number), which is not possible. So the number of performances given by the bands as well as by the artists must be 5. The number of performances given by Delhi Sea and Mitti must be the same and it should be 1 each only. The number of performances given by GTH was 3. Either Kehsanloy or Kumar gave 2 performances and the rest 3 artists gave 1 performance each.

As the last performance of Shankar was held before the first performance of GTH, Delhi Sea and Mitti must have performed successively in the first two slots on the first day. Shankar must have performed in either the first slot or the second slot on the first day.

The conclusions made thus far can be tabulated as given below.

Slot / Day	Slot-1	Slot-2	Slot-3
Day-1	-	-	-
	Delhi Sea	Mitti	GTH
Day-2	Subbu	-	-
	NA	GTH	GTH

88. c The given information can be tabulated as:

Slot / Day	Slot-1	Slot-2	Slot-3
Day-1	Shankar	NA	Kehsanloy
	Delhi Sea	Mitti	GTH
Day-2	Subbu	Kumar	Kehsanloy
	NA	GTH	GTH

89. b Kumar must definitely have performed with GTH as GTH performed in both the second and the third slot on the second day.

90. d All the given statements could be true.

For questions 91 to 93 :

Let Aadi, Bina, Cara, Diya, Ema, Fiza, Gauri and Hari be represented by A, B, C, D, E, F, G and H respectively. The number of neighbours of the person living in:

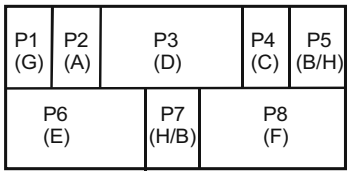
P1 and P5 = 2;

P2, P4 and P7 = 3;

P6 and P8 = 4;

P3 = 5.

From statement (v), it can be concluded that A lives in P1 or P2 or P6. From statement (i), A cannot live in P6 as then A and C will not have the same number of neighbours. From statement (ii), A and F have a common neighbour – D – and hence it can be concluded that A lives in P2 and D lives in P3. From statement (iii), E lives in P6 and hence G lives in P1. From statements (iv) and (i), it can be concluded that C lives in P4. Thus it can be concluded that one between B and H lives in P5 and the other lives in P7. The following figure illustrates these conclusions:



91. Either Bina or Hari lives in P7.

92. Aadi has three neighbours.

93. Gauri is not a neighbour of Diya.

For questions 94 to 96:

From statements (i), (ii) and (vi), it can be concluded that Alfred was the first person to reach the museum. From statements (i), (ii) and (iv), it can be concluded that Dirk was wearing the Yellow shirt.

Hence, either Alfred or Buckley was wearing the Purple shirt and the other one was wearing the White shirt. From statement (v), it can be concluded that Alfred was wearing the Purple shirt while Buckley was wearing the White shirt. Further analysis leads to the following table:

	(Left to Right) First-to-last to arrive at museum			
Person	Alfred	Dirk	Buckley	Cherry
Shirt Colour	Purple	Yellow	White	Red

94. Buckley

95. Cherry

96. Only statement I is correct.

For questions 97 to 99 :

Given that the increase in the number of applicants in the Commerce stream in 2008 as compared to 2007 is 70000 and that the average number of applicants in the four given streams in 2008 is 400000.

Therefore, the increase in the number of applicants in the Engineering stream in 2008 will be 70000 + 20000 = 90000.

Thus, the corresponding increase in the number of applicants in the Medical Science stream in 2008 will be 90000 – 69000 = 21000 and subsequently the increase in the number of applicants in the Arts stream will be 21000 + 59000 = 80000.

97. d So, the values of C, E and F will be

(70000 – 21000 = 49000), (80000 – 90000 = – 10000) and (80000 – 70000) respectively.

So, the options (a), (b) and (c) are true.

For questions 98 and 99:

Let the number of applicants in the Engineering, Medical Science, Commerce and Arts stream in 2007 be 'x', 'y', 'z' and 'w' respectively.

Therefore, the number of applicants in the Engineering, Medical Science, Commerce and Arts stream in 2008 will be (x + 90000), (y + 21000), (z + 70000) and (w + 80000) respectively.

So, $x + y + z + w + 261000 = 400000 \times 4 = 1600000$.

Or, $x + y + z + w = 1339000$.

99. b So, Required percentage

$$= \left(\frac{80000}{1339000}\right) \times 100 = 5.97\ \% \approx 6\%$$

For questions 100 to 102 :

100.c Considering the statements made by C, we can conclude that one of the two statements I and II must be true, which means that statement III is definitely false.

So, A took a blue ball.

101.d Considering the statements made by C, we can conclude that one of the two statements I and II must be true, which means that statement III is definitely false.

Considering the statements made by E and A: Both statements II and III by E state that B took a blue ball and hence both are false as only one statement made on B is true. So statement I of both A and E are correct.

So, F took a red ball and B took a green ball.

Hence statement II by A was false.

So, C took a red ball.

102.b Considering the statements made by C, we can conclude that one of the two statements I and II must be true, which means that statement III is definitely false.

Considering the statements made by B:

We know that statement I is definitely false as A took a blue ball. Also, statement III is false.

So, statement II made by B is true.

Considering the statements made by F: We already know that A took a blue ball and C took a green ball. Hence, both the statements I and II are false and therefore statement III made by F is true.

So, neither D took a yellow ball nor did he took a red ball.

Consider the statements made by D: We already know that statement II is false as F took a red ball. So, one of the statements I and III is true.

It is also given that balls of two different colours were not taken by any of the mentioned persons.

Case I: E took a yellow ball

D must have taken a blue ball and balls of white and black colour are not taken by any of the mentioned persons.

Case II: D took a green ball

E could have taken either a white or a black ball.

For four persons viz. A, F, C and B the exact color of the balls taken by them can be determined.

For questions 103 to 105 :

From the given information, we can summarize the data in the following table:

	Akansh	Ajay	Ashok	Abhishek	Amit
Salaries (In Rs. Lakh)	7 or 13	11	13 or 7	9	8
Cities:	K/V	B/K/V	B/K/V	Prabandhnagar	Joka

Where 'K', 'V' and 'B' stands for 'Kunnamangalam', 'Vastrapur' and 'Banerghatta' respectively.

103. d If Akansh, lives in Vastrapur, then Ajay and Ashok must be staying at Kunnamangalam and Banerghatta, not necessarily in that order. Their average salary in any case will be Rs.12 lakhs or 9 lakhs. So, the data is insufficient.

104. c Amit called a friend, who gets Rs. 9 lakh as his salary is a perfect square multiple of 100000 and stays in Prabandhnagar.

Abhishek stays in Prabandhnagar.

105. d Amit lives in Joka, so Ajay must be living at Kunnamangalam. Since Akansh is not staying at Banerghatta, he must be staying at Vastrapur.

For questions 106 :

From statement (V), B and G cannot be together in the team. Therefore, there are three possible cases.

Case I: When B is selected.

F cannot be selected as F can only be selected when both G and N are selected. Thus, when B is selected, the team comprises exactly four bowlers. Also, J must be the wicketkeeper in the team, as selection of I ensures selection of F. Following table gives the possible compositions for the team.

Batsmen	Bowlers	Wicketkeeper
A, D, L, N, O, K/M	B, H, C, E	J

The number of ways in which the team can be formed

$= 2 \times 1 \times 1 = 2$

Case II: When G is selected.

H cannot be selected as H can only be selected when B is selected. Thus, when G is selected, then again the team comprises exactly four bowlers. Following table gives the possible compositions for the team.

Batsmen	Bowlers	Wicketkeeper
A, D, L, N, O, K/M	G, F, C, E	I/J

The number of ways in which the team can be formed

$= 2 \times 1 \times 2 = 4.$

Case III: When neither B nor G is selected.

When both B and G are not selected, then there is no possible composition for the team.

106. d The total number of ways in which the team can be formed = 2 + 4 = 6.

For questions 107 to 109 :

The table below gives all the possible values of B, C, D, E, F, G, H, I and J if the value of A is assumed to be 'x'.

A	x
B	x ± 1
C	x ± 1; x ± 3
D	x; x ± 2; x ± 4; x ± 6
E	x ± 1; x ± 3; x ± 5; x ± 7
F	x ± 1; x ± 3; x ± 5; x ± 7; x ± 9
G	x; x ± 2; x ± 4; x ± 6; x ± 8; x ± 10; x ± 12
H	x ± 1; x ± 3; x ± 5; x ± 7; x ± 9; x ± 11; x ± 13
I	x ± 1; x ± 3; x ± 5; x ± 7; x ± 9; x ± 11; x ± 13; x ± 15
J	x; x ± 2; x ± 4; x ± 6; x ± 8; x ± 10; x ± 12; x ± 14; x ± 16; x ± 18

107. d Clearly only 19 distinct values are possible for J if the value of A is known.

Answer option (d) is the correct choice.

108.b If 'x' is even then A, D, G and J are even. If 'x' is odd then B, C, E, F, H and I are even.

Answer option (b) is the correct choice.

109. a If x = 1 then a possibility is that B = 2, C = 4, D = 1, E = 2, F = 4, G = 1, H = 2, I = 4 and J = 1 in which case 7 values are perfect squares. This is the maximum number of perfect squares which can occur at the same time i.e. in a single case.

110. c Let the production be 100x and export (volume) be 100y.

As the share in export for three products (I.e. A, D and F is more than that in production but A witness the maximum change in share.)

For maximizing the export (volume) assume all volume of A is exported

$\therefore 8x = 10y \Rightarrow \frac{y}{x} = 0.8 = 80\%.$

111. b Let the expenses and export by value be 100 x and 100y respectively.

As D is making profit

$\therefore 16x > 18y \Rightarrow x > \frac{9}{8}y$

Now, we can see that three products B, C and F can be in loss.

112. d Let export (by volume) and export by value be 100x and 100y respectively then price per unit for all products is shown below:

$A = \frac{14y}{10x}$, $B = \frac{12y}{17x}$,

$C = \frac{20y}{15x}$, $D = \frac{15y}{25x}$

$E = \frac{16y}{11x}$, $F = \frac{20y}{22x}$

Hence, E has the highest price per unit.

113. c Let the production and export is 100x and 100y respectively.

Rejection rate of all products is given below:

$A = 1-\frac{10y}{8x}$, $B = 1-\frac{17y}{20x}$, $C = 1-\frac{15y}{20x}$

$D = 1-\frac{25y}{22x}$, $E = 1-\frac{11y}{15x}$, $F = 1-\frac{22y}{18x}$

Hence, E has the maximum rejection rate.

114.10 Since, L is the winner of the tournament, it must have won at least five matches. E is not qualified for second stage, it means E definitely won less than six matches.

Only possible case is shown below:

Number of matches won by E = Number of matches won by L = 5

Hence, required number = 5 + 5 = 10.

115. 2 Any team who had won two matches, there is a possibilities that the team will qualify for second stage. A possible case for the number of wins

= 2 2 2 2 2 6 6 6.

116. 2 Statement (i) is obviously true.

Three teams in group 1 and three teams in group 2 can win one match each in stage 1.

Statement (ii) is incorrect because maximum number of teams which could have three wins in the first stage would be 14.

Possible case: 3 3 3 3 3 3 3 7 i.e. seven teams in each group would have three wins in the first stage.

Statement (iii) is clearly correct.

Hence, statement (i) and (iii) are correct

117. 22 Four teams cannot have six wins each hence maximum number of matches won in the first stage by teams A, B, C and D together would be 22

Possible case for number of wins: 2 1 1 2 4 6 6 6.

Required number = 4 + 6 + 6 + 6 = 22.

118. d Option (a) Violates the condition that Rahul and John want to be selected together.

Option (b) Violates the condition that Kamal cannot be in the group with Nusarat.

Option (c) Violates the condition that Rahul and John are to be selected together.

Option (d) Rohit, Nusarat, Rehana – is acceptable

119. c Option (a) Violates the condition that John and Rahul are selected together.

Option (b) Violates the condition that Kamal has to be with Rehana.

Option (c) Rahul, John, Rehana, Kamal – is acceptable

Option (d) Violates the condition that Nusarat cannot be with Kamal.

120. d Option (a) is not correct as if Kavya and Rohit both the selected then Rahul and John cannot be selected and Kamal and Rehana must be selected. If Kamal is selected then Nusarat cannot be selected but as Rohit is selected Nusarat must be selected which is contradictory.

Option (b) is also incorrect.

Both women $\Rightarrow$ Rehana and Kavya

Kavya $\Rightarrow$ Kamal

Now, one more male is required. He cannot be Rahul or John because they should necessarily be together. Rohit cannot exist in the group without Nusarat and Nusarat cannot exist because Kamal is already selected. Hence, a group of 4 having both women is also not possible.

Option (c) is not correct as Kamal should not be with Nusarat and Rohit cannot be with Rahul.

121. a The only possible group:

Kamal, Kavya, Rehana, Rahul and John.

For questions 122 to 125: Let the total money with the three of them in the beginning be Rs. 45x, the amount left with Mina and Dika after making the purchases be Rs. y each and the money spent on Bindaas shares by Ina and Mina be Rs. z each. The initial table can be made as shown below.

Name	Ina	Mina	Dika	Total
Money spent (in Rs.) on Jhakkas shares	4.5y	2y	y	15x
Money spent (in Rs.) on Bindaas shares	z	z	5x	
Amount (in Rs.) left	3x	y	y	
Total (in Rs.)		15x		45x

Now,

$$(2y + y) - (y + y) = 2,00,000$$

$$\Rightarrow \quad y = 2,00,000 \quad \ldots(i)$$

$$4.5y + 2y + y = 15x$$

$$\Rightarrow \quad x = 1,00,000 \quad \ldots(ii)$$

$$2y + z + y = 15x$$

$$\Rightarrow \quad z = 9,00,000 \quad \ldots(iii)$$

The final table is given below.

Name	Ina	Mina	Dika	Total
Money spent (in Rs.) on Jhakkas Shares	9,00,000	4,00,000	2,00,000	15,00,000
Money spent (in Rs.) on Bindaas Shares	9,00,000	9,00,000	5,00,000	23,00,000
Amount (in Rs.) left	3,00,000	2,00,000	2,00,000	7,00,000
Total (in Rs.)	21,00,000	15,00,000	9,00,000	**45,00,000**

122. Total amount spent by the three of them on purchasing Bindaas shares

= Rs. 23,00,000

The number of Bindaas shares purchased

$$= \frac{2300000}{5000} = 460.$$

123. Total money available with Ina in the beginning = Rs. 21,00,000.

124. Mina, and not Dika, was the person. Hence, statement I is not correct.

They were left with Rs. 7,00,000 after making the purchases. Hence, statement II is correct.

125. The required amount = Rs. 45,00,000.

For questions 126 to 129:

Total number of pizza = 800

70% were delivered to party 3 = $\frac{70 \times 800}{100}$ = 560 pizza

800 – 560 = 240

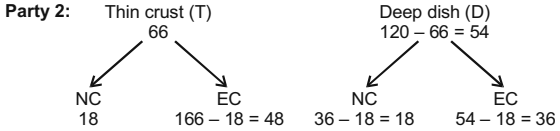
$\therefore$ 120 pizza each were delivered to party 1 and party

	(T) THIN CRUST	Normal Cheese (NC)
Party 1	0.6 × 120 =- 112	416 – 364 – 36 = 16
Party 2	0.55 × 120 = 66	0.3 × 120 = 36
Party 3	300 – 72 – 66 = 162	0.66 × 560 = 364
Total	0.375 × 800 = 300	0.52 × 800 = 416

126. From table, 162 thin crust pizzas were to be delivered to party 3.

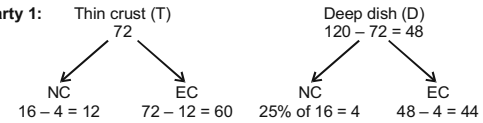
127. From table, 16 normal cheese pizzas were required to be delivered to party.

128. 50% of normal cheese of party 2 $= \frac{50 \times 36}{100} = 18$ pizza were thin crust.



Difference between number of T – EC and D – EC = 48 – 36 = 12

129.



Given: T-EC (Thin crust with extra cheese)

= Rs.500

D-EC = 500 + 50 = Rs.550

T-NC costs = $\frac{3}{5}$ of D-EC = $\frac{3}{5}$ × 550 = 330 Rs.

D-NC costs = Rs.330

Total biu for party 1

= (12 × 330) + (500 × 60) + 4 × (330) + (550 × 44)

= 3960 + 30,000 + 1320 + 24200 = 59480

For questions 130 to 133:

Total students = 300

After change process = 292

Missing information = 8 students

	E1	E2	E3	E4	E5	E6
E1	9	5	10	1	4	2
E2	D	34	8	0	2	2
E3	2	6	25	0	1	2
E4	1	3	2	14	1	4
E5	1	5	1	0	30	1
E6	1	7	3	1	2	9
E7	4	16	30	5	5	41

Before the change process

E1 = E4 + 6

E1 = 31 (With missing information)

E4 = 23 (With missing information)

After the change process E4 = E1 + 3

E1 = 16

E4 = 20

Number of E2 increased by 30

After reshuffling E2 = 76

Before = 76 – 36 = 46

With missing information E2 = 46, number change

Before reshuffling E4 = E6 + 2

Since with missing information E4 = 25, E6 = 21.

Before, reshuffling E2 = e3 + 10

E2 = 46, E3 = 35

Since after change, E4 = E1 + 3

E4 = 21, E1 = 17

Now, since total students are 300, fill out missing information

130.

	Before	After
E1	31	18
E2	46	76
E3	36	79
E4	25	21
E5	38	45
E6	23	61

131. 18, 76, 79, 21, 45, 61

132. $\frac{E3_{After} - E3_{Before}}{E3_{Before}} \times 100 = \frac{61-23}{61} \times 100 = 165.217.$

Which is largest.

133. After reshuffling E1 has 18 students which is less than 20. E1 + (5 + 10 + 1 + 4 + 2) = 18 + 22 = 40

From E1 to E2 = 5 students

E2 – 5 = (76 – 5) students = 71

From E1 to E3 = 10 students

E3 – 10 = (79 – 10) students = 69

From E1 to E4 = 1 students

E4 – 1 = 21 – 1 = 20 students

From E1 to E5 = 4 students

E5 – 4 = 45 – 4 = 41 students

From E1 to E6 = 2 students

E6 – 2 = (61 – 2) = 59 students

Decreasing order

E2 > E3 > E6 > E5 > E1 > E4.

134. Given value of the assets was distributed equally

$\therefore$ Neeta, Seeta & Geeta received 70 lakh each each.

Since, neeta received the least amount and Geeta received the highest amount in bank deposits

$\therefore$ The only possibility is

Neeta: 2 flats : 30 × 2 = 60 lakh and

70 – 60 = 10 lakh in bank deposit

Seeta: 1 house : 50 lakh and

70 – 50 = 20 lakh in bank deposit

Geeta: 70 – 10 – 20 = 40 lakh in bank deposit

Option (3).

135. Neeta received 2 flats.

136. Total assets is worth Rs = (210 + x) lakhs, where x is the number of Gold coins worth of 1 lakh each.

Given:

Ratio for assets is 1 : 2 : 3 and for gold coins is 2 : 3 : 4

$\therefore$ Seeta has $[210 + x] \times \frac{2}{6}$ lakhs of assets and $x \times \frac{3}{9}$ gold coins.

$\Rightarrow \left(70 + \frac{x}{3}\right)$ lakhs, where $\frac{x}{3}$ is the gold coins and 70 lakhs (bank deposits, home and flat)

Since, one child got all three flats which costs = 3 × 30 = 90 lakhs

$\therefore$ Seeta doesn't get flats

and other than Geeta, one child got 30 lakhs in deposits

$\Rightarrow$ Seeta gets home, i.e. she has (70 – 50) = 20 lakhs in bank deposit.

$\therefore$ Neeta gets 30 lakhs indeposits and Geeta gets (70 – 30 – 20) lakhs = 20 lakhs in bank deposits.

Also, Geeta gets 3 flats each of 30 lakhs.

Let the number of gold coins received by Neeta, Seeta and Geeta be 2a, 3a, 4a respectively.

$\Rightarrow \frac{30 + 2a}{70 + 3a} = \frac{1}{2}$

$\Rightarrow$ a = 10

Gold coins (x) = (2 × 10) + 3(10) + 4 × 10

= 90

137. 20 lakhs from above explanations.

For questions 138 to 141:

Note :- Each committee has at least one from each of the three types - bureaucrats, educationalists and politicians.

By statement 1:-

Let Bureaucrats in the administration committee = a

Then Bureaucrats in the research and teaching committee will be $\frac{a75}{100} = \frac{3a}{4}$ respectively.

$\therefore$ only possible value of 'a' can be 4

(since, if a takes values greater than 4 say 8, then $\frac{3a}{4} = 6$ and that gives the total 8 + 6 + 6 = 20 and according to the Note, this is not possible)

$\therefore$ Total numbers of people in Research Committee are 10.

By statement 2:-

Let the number of educationalists in the teaching committee and administration committee be b and d respectively then, number of educationalists in Research committee will be = $\frac{b + d}{2}$

Also $b < \frac{b + d}{2}$

$\Rightarrow$ 2b < b + d

$\Rightarrow$ b < d

Following the conditions stated above the possible combinations are:-

	Educationalists		
	Case I	**Case II**	**Case III**
Research	2	3	3
Teaching	1	1	2
Administration	3	5	4
Total	6	9	9

By statement 3:-

Let total number of politicians be 'P', then

	Politicians
Research	P/5
Taching	P/5
Adminsitration	3P/5

Therefore, P is a multiple of 5 and therefore (Case I) of statement 2 is eliminated. So, P = 5.

Final table looks like:-

		Research	Teaching	Administration
Bureaucrats		3	3	4
Educationalists	Case I	3	1	5
	Case II	3	2	4
Politicians		1	1	3
Total		7	5/6	12/11

138. The size of the research committee is less than the size of the teaching committee

139. Number of bureaucrats in the administration committee = 4

140. Number of educationalists in the research committee = 3.

141. The size of the teaching committee could be either 5 or 6, hence, cannot be determined uniquely.

For questions 142 to 145:

Given: The satellite serving either B, C or S do not serve O.

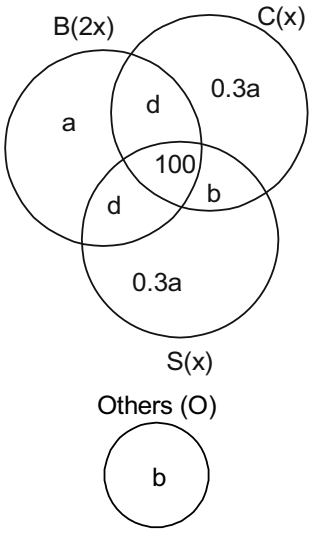
From statement (1), the number of satellites serving B, C and S are 2x, x, and x respectively.

Let number of satellites serving B exclusively are 'a', than the number of satellites serving C and S exclusively are $\frac{3a}{10}$ = 0.3a each.

Let number of satellites serving others (O) = b then b = satellites serving both C and S but not B.

Since the number of satellites serving C and S are equal, therefore number of satellites serving 'B and C but not S' is equal to the number of satellites serving 'S and B but not C', say d.

Further the following Venn diagram can be formed:-



Now, a + 2d + 2b + 100 + (0.3a)2 = 1600

1.6a + 2d + 2b = 1500 ....(1)

By statement (1),

a + 2d + 100 = 2(0.3a + d + b + 100)

a + 2d + 100 = 0.6a + 2d + 2b + 200

0.4 a = 2b + 100

$\boxed{a = 5b + 250}$ ....(2)

By (1) and (2), we get

8b + 400 + 2d + 2b = 1500

10b + 2d = 1100.

5b + d = 550

$\boxed{d = 550 - 5b}$

142. Number of satellites serving C

= 0.3a + b + d + 100

= 0.3 (5b + 250) + b + 550 – 5b + 100

= 1.5 b + 75 + 650 – 4b

= 725 – 2.5b

Maximum value when b = 0, is 725.

Now $d \geq 0$

$\Rightarrow$ 550 – 5 b $\geq$ 0

$\Rightarrow$ 110 $\geq$ b.

Maximum value of b = 10.

Minimum value when b = 110, is 450.

143. The minimum possible number of satellites serving B exclusively are:-

a = 5b + 250.

Minimum will be b = 0, i.e., a = 250.

144. The minimum value of O is 100, i.e., $b \geq 100$.

Now S = C = 725 – 2.5b.

This will be maximum when b is minimum

Minimum value of b = 100.

Maximum value of S = 725 – 2.5(100) = 475.

$\therefore$ At most 475.

145. Number of satellites serving at least two of B, C and S is 1200.

i.e, d + d + b + 100 = 1200.

$\Rightarrow$ 2[550 – 5b] + b + 100 = 1200

$\Rightarrow$ 1100 – 10b + b + 100 = 1200

$\Rightarrow$ –9b = 0

$\Rightarrow$ This is only possible when b = 0

Then, d = 550 and a = 250.

Now satellites serving C = d + b + 0.3a + 100

= 550 + 0 + 0.3 (250) + 100 = 725

The number of satellites serving C can be uniquely determined.

Hence Option (4).

For questions 146 to 149:

146. From the second condition, we know that R > I as Best Ed and Cosmopolitan have similar points in F i.e. B and in P i.e. D.

(a) From the third condition, we know that I > P, as Education Aid and A-one have similar points in F and R i.e. A. Therefore, R > I > P.

(b) Now, we have a few distinct possibilities for F.

Consider condition 1, if we take F = 0.4 then R = 0.3, I = 0.2, P = 0.1.

Then, Overall Score of High Q = 30 × 0.4 + 20 × 0.3 + 20 × 0.1 + 40 × 0.2 = 28

Overall Score of Best Ed = 40 × 0.4 + 30 × 0.3 + 20 × 0.1 + 20 × 0.2 = 31.

But High Q is better than Best Ed, so F is not equal to 0.4. Since, R > I > P therefore, F = 0.1.

Finally we get, R = 0.4, I = 0.3, P = 0.2, F = 0.1.

The weight of the faculty quality parameter is 0.1

147. Since, R = 0.4, I = 0.3, P = 0.2, F = 0.1.

We get the following table.

	F = 0.1	R = 0.4	P = 0.2	I = 0.3	Overall Score	Rating
A-one	50 × 0.1	50 × 0.4	50 × 0.2	40 × 0.3	47	AAA
Best Ed	40 × 0.1	30 × 0.4	20 × 0.2	20 × 0.3	26	BBA
Cosmopolitan	40 × 0.1	20 × 0.4	20 × 0.2	30 × 0.3	25	BBA
Dominance	20 × 0.1	20 × 0.4	40 × 0.2	30 × 0.3	27	BBA
Education Aid	50 × 0.1	50 × 0.4	40 × 0.2	50 × 0.3	48	AAA
Fancy	50 × 0.1	50 × 0.4	40 × 0.2	40 × 0.3	45	AAA
Global	30 × 0.1	0 × 0.4	20 × 0.2	20 × 0.3	13	Junk
High Q	30 × 0.1	20 × 0.4	20 × 0.2	40 × 0.3	27	BBA

$\therefore$ Only A-one, Education Aid, and Fancy have got AAA rating.

148. Check from the table given in the previous question. The highest score is 48 for Education Aid.

149. Check from the table given in the answer for the 10th question, no college has overall score between 31 and 40.

For questions 150 to 153:

(a) The outlet received 88000 units of L by selling A during the day.

Now as the amount received by the outlet by selling A and B is 5 : 9, the amount the outlet received by selling B = $\left(\frac{9}{5}\right)$ × 88000 = 158400 units of L.

(b) The outlet ended with the same amount of B it started the day with, that is, 4800 units. Thus, it must have bought the same amount of currency B that it sold.

Since the outlet received 158400 units of L by selling currency B,

$\therefore$ The base value of the amount will be = $\left(\frac{158400}{1.1}\right)$

= 144000

[Since the company charges 10% premium while selling exchange rates].

Since the base value is 144000, the amount in buying currency B = $\left(\frac{144000}{0.95}\right)$ = 136800.

(c) Now, we know that the amount the outlet received by selling A and B is in the ratio 5 : 3,

$\therefore$ The amount the outlet received is = 136800 × $\left(\frac{5}{3}\right)$ = 228000.

(d) The outlet started the day with 2500 units and ended the day with 3300 units of A. Therefore, it bought 800 units of A more than it sold.

Using similar methods, the base value of L that the company received by selling L = $\frac{88000}{1.1}$ = 80000.

The base amount the company bought A for is $\frac{228000}{0.95}$ = 240000.

Since the difference in the amounts of L denotes 800 extra units of A, (240000 – 80000) = 160000, units of L = 800 units of L. So, 200 units of L = 1 unit of A.

Following, 240 units of B = 1 unit of L, and 2 units of C = 1 unit of L.

(e) We know that the amounts of L used to buy and sell C is the same. Let that be X.

While buying, it's base value will be $\left(\frac{X}{0.95}\right)$, and while selling it will be $\frac{X}{1.1}$.

The outlet ends the day with 3000 units of C more than it started the day with, so, since the currency rate 2 : 1.

$$\frac{\left(\frac{X}{0.95}\right)}{2} = \left\{\frac{\left(\frac{X}{1.1}\right)}{2}\right\} + 3000$$

Solving, we get X = 41800

150. Base value of 228000 = $\frac{228000}{0.95}$ = 240000. (As company buys currency at 5% below the base exchange rate).

The number of units of currence C bought by the outlet on that day = $\frac{240000}{200}$ = 1200.

151. Base value of C in L while selling = 38000.

The number of units of currency C sold by the outlet on that day = $\frac{38000}{2}$ = 19000.

152. 240

153. 2 × 0.95 = 1.90

CALCULATION BASED DI

For question 1 to 3:

Since Ghosh babu distributed his property equally among his 4 daughters, each one of them should get 25% of the property. The eldest daughter got 20% of the total property and Rs.25000 in cash. So, Rs.25000 should constitute 5% of the total property. Hence the total property is worth Rs.5 lakhs.

Now, the total cash given by him = Rs.25000 (eldest daughter) + Rs.50000 (second daughter) + Rs.150000 (i.e. Rs.75000 each to his third and fourth daughters) = Rs.225000.

So, out of his total property of Rs.500000, Rs.225000 is cash, so the gold and silver should be worth Rs.275000.

3. d If Ghosh Babu has equal number of gold and silver bars, the value of 1 gold bar and 1 silver bar is Rs.5000 (i.e. Rs.4000 + Rs.1000) and the total worth of gold and silver bars is Rs.275000.

Hence, number of gold and silver bars would be equal i.e. $\frac{275000}{5000}$ = 55.

4. d The answer cannot be determined as the data for only five states is given and we don't know the excise duty rates for other states.

5. d We have been given the total value in the graph, but nothing is mentioned about the amount of liquor manufactured by states other than Tamil Nadu.

6. c Since Excise duty is levied on the total value of liquor produced by the 5 distilleries, this will be in the same order as the order of the amount of the liquor produced by them (as the excise duty rate remains constant). Hence the correct order is DCEBA.

7. b Average simple annual growth rate of five distilleries is as follows:

$A = \frac{1}{2}\left(\frac{12.89 - 6.41}{6.41}\right) \times 100 = 50.54\%$

$B = \frac{1}{2}\left(\frac{12.07 - 3.15}{3.15}\right) \times 100 = 141.58\%$

$C = \frac{1}{2}\left(\frac{11.92 - 1.64}{1.64}\right) \times 100 = 313.41\%$

$D = \frac{1}{2}\left(\frac{5.79 - 1.05}{1.05}\right) \times 100 = 225.71\%$

$E = \frac{1}{2}\left(\frac{4.21 - 2.45}{2.45}\right) \times 100 = 35.91\%$

So the distillery with highest growth rate is C and with lowest growth rate is E.

So had the amount of liquor manufactured by E grown by 313.41% in the 2 year period ie. Grown by 616.82% overall, its supply in 1998 would be

$2.45 \times \frac{616.82}{100}$ = 15.11 liters.

8. a Required average

$= \frac{(100.5 + 67 + 141 + 143.9 + 65)}{5} = 103.48$

9. a The key here is figuring out that the only performance which is less than the 1985 performance is the 1988 performance. Hence the percentage corresponding to 1988 should be less than 100.

Thus we see that (c) cannot be the answer. Also (b) cannot be the answer as it shows two of the years having less than 100%.

Between options (a) and (d), the correct answer is (a), This is so because the difference between the 1985 and 1988 performance is only 2 units on 67 units. Hence percentage wise it has to be 97% and not 68%.

10. b The highest percentage decline over the previous year is seen for the year 1988, as in this year the performance almost halved.

11. c The estimated total expenditure

= 52.1+267.5+196.4+209.5

= 725.5 lakhs.

If it has to be kept within 700 lakhs, the expenditures have to be cut by 25.5 laks.

Cut in expenditure every year

$= \left(\frac{25.5}{4}\right)$ = 6.375 lakhs.

Hence, percentage cut for 1989

$= \left(\frac{6.375}{15}\right) \times 100 = 42.5\%$.

12. b The estimated costs of material and labour for different years are :

1988 = 2.1

1989 = 95+70+15+25+25 = 230

1990 = 80+45+12+18+20 = 175

1991 = 75+60+16+21+18 = 190

Required proportion

$= \frac{2.1 + 230 + 175}{2.1 + 230 + 175 + 190} = 0.682$

13. b Total material cost for all years

= (95+80+75+70+45+60+15+12+16+25+18+21)

= 532

Total labour cost for all years = (2.1+25+20+18)

= 65.1

Hence ratio = 532 : 65.1 ≈ 8 : 1

14. b In the given table we can see that the costs that can be taken under the head "Materials" are : Cement, Steel, Bricks and Other building materials.

The estimated cost of these heads in 1990

= 80 + 45 + 12 + 18 = 155

The estimated cost of these heads in 1991

= 75 + 60 + 16 + 21 = 172

Since the cost of material rises by 5%, or would rise by 0.05X (155 + 172) = Rs.16.35 lakhs.

15. b Till 1990, actual amount spent = Rs.725.5 lakhs

Expenditure for 1991 as estimated = 209.5 lakhs.

$$\text{Required percentage increase} = \frac{209.5}{725.5} \times 100$$

= 28.89%.

16. a Total estimate = Rs. 725.5 lakh;

Estimate of contingencies = (1 + 15 + 4.2 + 5)

= Rs.25.2 lakh.

Now as the estimate of contingencies is doubled, it increases by Rs.25.2 lakhs.

Hence, the percentage increase in the total estimate is $\left(\frac{25.2}{725.5}\right) \times 100 = 3.47\%$.

17. c From table 3 it can be seen that the highest percentage of sales to stock is 74% for the Region 4 and colour Brown.

18. b From Table 4 it can be seen that in region 1, the maximum percentage of saris were sold of Brown colour viz.22% and hence this is the most popular colour in this region.

19. d This can be answered from the fifth table. It can be seen that Region 1 has sold the maximum percentage of magenta saris out of its total magenta saris sold (viz.44%)

20. b This can be answered from the fourth table. It can be seen that Region 6 has sold the least percentage of green saris out of its total sale (viz.14%)

21. a This can be answered from the fifth table. It can be seen that the percentage of blue saris sold is maximum for Region 2 viz. (33%)

22. a

Year	Consumption of chemical fertilizers	Gross cropped area	Ratio
84-85	(3.68+1.21+0.62) = 5.51	173.1	0.032
85-86	(4.07+1.32+0.67) = 6.60	177	0.037
86-87	(4.22+1.44+0.73) = 6.39	172.6	0.037
87-88	(5.20+1.73+0.78) = 7.71	180.4	0.043

Hence the ratio is lowest for 84-85.

23. a It can be seen that in 88-89, area cropped shows a decline for 3 of the crops viz.wheat, jowar and bajra. This is the maximum number of crops for any year.

24. d The amount area brought under irrigation for Major and Medium in 86-87 = (24 – 23.2) = 0.8

The amount area brought under irrigation for Minor in 86-87 = (34.2 – 32.77) = 1.43

Hence total area brought under irrigation in 86-87

= 0.8+1.43 = 2.23 million hectares.

25. d It can be seen that only in the year 1987-88, the area under minor irrigated area has decreased (from 34.2 to 34). Hence it is obvious that this area should have been transferred to major and medium irrigated areas.

For questions 26 to 30:

$$\text{Per Capita Income} = \frac{\text{(National Income)}}{\text{(Population)}}$$

Year	Per Capita Income	increase over previous year
1984-85	3097.62	-
1985-86	3482.32	384.70
1986-87	3786.44	304.12
1987-88	4202.98	416.54
1988-89	4856.73	653.75
1989-90	5319.01	462.28

Year	Population (in crore)	Percentage increase over the previous year	Per Capita Income	Percentage increase over the previous year
1984-85	74	-	3097.63	-
1985-86	75	1.35%	3482.32	12.43%
1986-87	77	2.66%	3786.44	8.73%
1987-88	78.5	1.94%	4202.98	11.01%
1988-89	80	1.91%	4856.73	15.56%
1989-90	81.5	1.87%	5319.01	9.51%

26. b As it can be clearly seen, the increase is lowest for the year 1986 – 87 = Rs. 304 .12

27. d Per Capita Income is highest for the year 1989 – 90 ≈ 5319.

28. d Required difference is highest for the year 1988 - 98, 13.65.

29. a It is apparent that the rate of increase of population is lowest for the year 1985-86 viz.1.35%.

30. a Among the years given in the answer choices, the increase in per capita income compared to previous year is highest for the year 1985 - 86.

For questions 31 to 35:

Let us assume that Ghosh Babu had deposited Rs.100 initially.

Year	Opening Balance	Interest Earned	Withdrawn by Ghosh Babu	Closing Balance
1986	100	10	10 + 20 = 30	80
1987	80	8	8 + 40 = 48	40
1988	40	4	4 + 20 = 24	20
1989	20	2	22	0

31. c Had he deposited Rs.100 initially, he should have withdrawn Rs.22 at the end to close the account. Since he withdrew Rs.11000, at the end, he should have initially deposited Rs.50000.

32. d He withdrew the smallest amount after the 4th year.

33. a He collected the maximum interest after the 1st year.

34. b Ghosh Babu withdrew the maximum amount after the 2nd year.

35. a The total interest collected by Ghosh Babu is Rs.24 on Rs.100. Hence on Rs.50000, it would be Rs.12000.

For questions 36 to 40:

The values of the graph can be tabulated as given below:

	A	% Change	B	% Change	C	% Change	D	% Change
Jan	100	–	70	–	60	–	40	–
Feb	95	–5%	72	2.85%	55	-8.33%	50	25%
Mar	115	21%	74	2.77%	60	9.09%	50	–
Apr	105	–8.7%	76	2.70%	69	15%	41	–18%
May	100	–4.7%	78	2.63%	60	–13%	44	7.31%
Jun	110	10%	80	2.56%	55	–8.33%	45	2.27%

36. d As it is seen the highest % increase is for D in Feb. viz.25%.

37. a The greatest absolute change in the market value for any share recorded is 20 i.e. for share "A" for month of March = 115 – 95 = 20.

38. a The greatest percentage change in any share was recorded for share D for the month of February viz. 25%.

39. d

	C	D	Total Earning	A	Gain/ Loss
Jan	60	40	100	100	–
Feb	55	50	105	95	+10
Mar	60	50	110	115	–5
Apr	69	41	110	105	+5
May	60	44	104	100	+4
Jun	55	45	100	110	–10

Hence, the maximum loss due to share value changes is 10 for the month of Jun. Hence the answer is (d).

40. b Again referring to the above table it can be seen that the individual's highest gain is Rs.10.

For questions 41 to 45:

Let the number of defective tests be 'x'

Cost to Prakash if he does not use any test = 50x

Cost to Prakash if he uses test 1

$$= 2 \times 1000 + \frac{4x}{5} \times 25 + \frac{x}{5} \times 50 = 2000 + 30x$$

Cost to Prakash if he uses test 2 = 3000 + 25x

Prakash should not test when

$$50x \leq 2000 + 30x \quad 20x \leq 2000 \quad x \leq 100$$

Prakash should use test 1 when

$$50x > 3000 + 25x \geq 2000 + 30x$$

$$3000 + 25x \geq 2000 + 30x$$

$$5x \leq 1000 \quad x \leq 200$$

For $x \geq 200$ he can use test 2.

41. a Below 100, no test would be cheaper.

42. d If there are 120 widgets, he should go for test I as it is cheaper.

43. c It is clear from the table that if the number of defectives is between 200 & 400, he should go for Test II as it is cheaper.

44. a In case of 160 defectives he should use test I as it is cheaper.

45. a If there are 200 defective widgets in the lot, Prakash may use either Test I or Test II as the cost of both the Tests is same= Rs.8000.

For questions 46 to 50:

Students please note that the values on the Y-axis are not given. For the sake of convenience let us assume that one step on y-axis is 'x' and starting value be k.

Years	Food production	Fertilizer production
83	6.5 + k	2.5x + k
84	5 + k	3.5x + k
85	5 + k	3.5x + k
86	6.5 + k	2x + k
87	6.5 + k	2x + k
88	5 + k	3.5x + k
89	5 + k	x +
90	7x + k	x + k
91	7x + k	x+ k

46. d If you see, for each year from 1984 to 1988 sum of food and fertilizers = 8.5x + 2k

Hence, it is constant for 5 years.

47. d Fertilizers production in 1988 = 3.5x + k

Food production in 1988 = 5x + k

As per the given information

8.5x + 2 k = 170

Value of x and k cannot be determined.

48. b The graph of food production shows an alternate increase and decrease in every 1 to 2 years. Hence looking at the trend of the graph in 1990 and 1991, it can be expected that the graph will go down in 1992.

49. d It is clear that the graph for fertilizer production remains constant for two consecutive years. But it breaks this trend in 1989 as it has a value lower than its value in 1988.

50. d If the fertilizer production in 1989 had been the same as that in 1988, its value for 1989 would have been 3.5x + k.

Hence total fertilizer production according to our values would have been (2.5x + k + 3.5x + k + 3.5x + k + 2x + k + 2x + k + 3.5x + k + 3.5x + k + x + k + x + k) = 22.5x + 9k. As per the given information 22.5x + k = 490

Value of x and k cannot be determined.

For questions 51 to 54:

The given graph can be represented in the following table:

Company	Sales (1)	Expend. (2)	Profit (3)=(1)–(2)	Equity (4)	Pro/Equ (3)/(4)	Sal/Equ (1)/(4)	Sal/Exp (1)/(2)	Growth Rate Sales
1990	80	76	4	8	0.5	10	1.05	-
1991	92	88	4	8	0.5	**11.5**	**1.04**	15%
1992	106	100	6	22	0.27	4.82	1.06	15.21%
1993	128	114	14	22	**0.64**	5.82	1.12	**20.75%**

51. c It is clear that the profit per rupee of equity is highest for 1993 viz. 0.64.

52. c The simple annual growth rate in sales is maximum for the year 1992-93 viz. 20.75%.

53. b Sales per rupee of the expenditure is lowest for the year 1991 viz. 1.04.

54. b Sales per rupee of equity is highest for 1991 viz. 11.5

For questions 55 to 58:

Let the profits of CAT and DAT be x, Sales of CAT and BAT be y and sales of ANT be z. So we have

COMPANY	SALES	EXPENDITURE	PROFIT
ANT	z	0.9z	0.1z
BAT	y	0.8y	0.2y
CAT	y	5x	x
DAT	3x	2x	x

Now, it is said that the total expenses of CAT were Rs.10 lakhs. Thus, 5x = Rs.10 lakhs or x = Rs.2 lakhs. Also, total expenses of ANT were 10% less than those of CAT = Rs.9 lakhs. Hence, 0.9z = 9 lakhs or z = 10 lakhs. Finally, in case of CAT, since Sales – Expenditure = Profit, Sales = Expenditure + Profit = 6x = 12 lakhs, y = 12 lakhs.

Our final table will become:

COMPANY	SALES	EXPENDITURE	PROFIT
ANT	10	9	1
BAT	12	9.6	2.4
CAT	12	10	2
DAT	6	4	2

(All values in lakh Rupees)

55. d Company with the lowest sales is DAT with a sales of Rs.6 lakhs.

56. c CAT had highest total expenses i.e. Rs.10 lakhs.

57. a ANT had lowest profits i.e. Rs.1 lakh.

58. b BAT had the highest profits i.e. Rs.2.4 lakhs.

For questions 59 to 62:

The given graph can be represented in the following manner:

Years	Net Fixed Assets (NFA)	Net Current Assets (NCA)	Investments	Total Assets (TA)
1990	7	13	2	22
1991	8	16	1	25
1992	7.5	15	2	25
1993	9	17	4	30

59. b The growth rate of total assets between 1990-93 = $\frac{(30-22)}{22}$ = 36%. But this is for a 3 year period.

Hence, simple average annual growth rate

$$= \frac{36}{3} = 12\%.$$

60. c It can be seen that the growth rate is lowest for investments in 1990-91 viz. 50% decrease.

61. c Between 1991 and 1992, the highest growth rate was seen for investments viz. 100% increase.

62. d It can be seen that every individual item has shown a decrease in some year or the other. Only Total Assets has not followed this trend.

For questions 63 to 71:

Since 40% of the students were females, i.e., 32 students. Total number of students was 80 and total number of male students was 48. Since half of the students were either excellent or good, (number of average students) = (number of good students + number of excellent students) = 40, number of excellent students = 40 – 30 = 10.

As 1/3rd of male students were average, total number of male students that were average = $\left(\frac{1}{3} \times 48\right)$ = 16 and hence, total number of male students that were good = (48 – 16 – 10) = 22.

Based on the above revelations, the following table can be drawn:

	Performance			Total
	Average	Good	Excellent	
Male	16	22	10	48
Female	24	8	0	32
Total	40	30	10	80

63. a Number of students who were both female and excellent = 0.

64. c Number of students who were both male and good = 22.

65. d Ratio of male to female among average students = 16 : 24 = 2 : 3.

66. b Proportion of female students who were good = $\left(\frac{8}{32}\right)$ = 0.25.

67. b Proportion of good students who are male = $\left(\frac{22}{30}\right)$ = 0.73.

68. b Thus, we can see that Solid Fuels and Petroleum together constitute more than 60% of total energy in both World and Asia for the given period.

69. a As seen from the above table, Petroleum is the fuel whose proportion in the total energy demand increases during 1990-2000 and decreases during 2000-2010 for both World and Asia.

70. d In case of Asia, for the given answer choices, we can make the following table:

		1990	2000	2010
Total Energy		**10**	**20**	**33**
Natural Gas	**Value**	0.5	2.5	5
	Proportion	5%	12.50%	15.15%
Solid Fuels	**Value**	4	5	10
	Proportion	40%	25%	30.30%
Nuclear	**Value**	0.5	1	1.3
	Proportion	5%	5%	3.90%
Hydropower	**Value**	1	1.5	2
	Proportion	**10%**	**7.50%**	**6.06%**

Hence, we can see that the proportion of Hydropower goes on decreasing over the period.

71. d In case of the World, for the answer choices, we can make the following table.

		1990	2000	2010
Total Energy		**150**	**200**	**250**
Natural Gas	**Value**	30	40	50
	Proportion	**20%**	**20%**	**20%**
Solid Fuels	**Value**	50	60	75
	Proportion	33.30%	30%	30%
Nuclear	**Value**	10	20	25
	Proportion	6.66%	10%	10%
Hydropower	**Value**	10	10	20
	Proportion	6.66%	5%	8%

Hence, we can see that the proportion of Nuclear gas in total energy demand of the World remains constant over the given period and its proportion will increase in the total energy demand in Asia.

(Use information of the question number 70.)

For question 72 to 74 :

Let us assume that Alphonso's total property was of Rs.x.

Person on death bed		Property given to his relatives					
		Widow	Mother	Ben	Carl	Dave	Total Share
	Aplhonso	x/2	-	x/6	x/6	x/6	x
	Ben	x/12	-	-	x/24	x/24	x/6
	Carl	5x/48	-	-	-	5x/48	5x/24
	Dave	15x/96	15x/96	-	-	-	15x/48

72. d Since Alphonso's wife is also the mother of Dave, the total share of this lady would be $\left(\frac{x}{2} + \frac{15x}{96}\right) = \frac{63x}{96}$. And since, $\frac{63x}{96} = 1{,}575000$

$\Rightarrow$ x = Rs.24 lakhs.

73. a Carl's original share was $\frac{x}{6} = \frac{24}{6}$ = Rs.4 lakhs.

74. b The ratio's of the property owned by the widows of the 3 sons $= \left(\frac{1}{12} : \frac{5}{48} : \frac{15}{96}\right) = 8 : 10 : 15$.

75. c

Option	Description	Solubility
(a)	Potassium Chlorate at 80^o	0.4
(b)	Potassium Chloride at 35^0 C	0.4
(c)	Potassium Nitrate at 39^0 C	**0.48**
(d)	Sodium Chloride at 85^0 C	0.4

Hence (c) is the correct answer.

76. c At 30°C, solubility of potassium nitrate is 0.38 kg./lt. Hence in 10 litres 3.8 kg.($\approx$4 kg) of potassium nitrate can be dissolved.

77. d Percentage increase in solubility of potassium chlorate $= \frac{(0.4 - 0.1) \times 100}{0.1} = 300\%$.

78. d Solubility of potassium chloride at 36°C = 0.4 kg./lt. Hence the amount of Potassium chloride that can be dissolved in 100 lt. at 36°C = 40 kg.

Number of moles $= \frac{40}{0.07456} \approx \frac{40}{0.075} = 533$.

As we have approximated 0.07456 as 0.075 and 540 is closest to 533, it should be correct answer.

79. c From the graph it can be seen that between 15°C &25°C, solubility of sodium nitrate, potassium chloride, sodium chloride, is almost constant. It can clearly seen from graph that solubility of sodium chlorate is maximum.

For questions 80 to 83:

From the data that is given we can find the following data: (the explanation of how the following values were arrived, is given after the table).

Item	1984-85	1985-86
Food (Percentage)	22%	23%
Food (Value)	4928	5934
Manufactured Articles	11648	11352
Raw Material	5824	8514
Total Value of Exports in Crore of Rs.	22400	25800

80. d Food related exports in 1985-86 = 0.23 x 25800 = 5934.

So food related exports in 1984-95 = (5934 – 1006) = 4928.

Hence, percentage of food related exports in 1984 – 85 $= \frac{4928}{22400} \times 100 = 22\%$.

81. b In 1984-85, Value of Manufactured articles & Raw materials exports = (22400 – 4928) = Rs.17472 crores.

Since Export of manufactured goods is twice that of raw materials, Rs.17472 has to be divided in the ratio 2:1.

Therefore, export of manufactured goods = Rs.11648 crores and Raw materials = Rs.5824 crores.

Hence, the difference between raw material and food = (5824 – 4928) = Rs.896 crores.

82. d In 1985-86, the combined percentage of Manufactured articles and Raw materials = 77% and this is in the ratio 4 : 3.

Hence, percentage of Manufactured articles export is 44% and that of Raw materials export is 33%.

Hence, value of manufactured = 0.44 × 25800

= Rs.11352 crores

and the value of Raw materials = Rs.8514 crores.

Hence, percentage difference between the value of Raw materials between 1984-85 and 1985-86

$= \left[\frac{(8514 - 5824)}{8514}\right] \times 100 = 31.6\%$.

83. a The change in the value of exports from 1984-85 to 1985-86 = (11648 – 11352) = Rs.296 crores.

84. c The skin & muscular protein totally constitutes 33% of the total proteins. The total proteins itself is 15% of the total body weight. Hence the percentage of skin & muscular protein as a fraction of the total body weight = 33% of 15% = 5 %. $= \frac{1}{20}$.

Required fraction

$= (8 + 25)\%$ of $15\% = \left(\frac{1}{3}\right) \times \left(\frac{3}{20}\right) = \frac{1}{20}$.

85. a Required Ratio = 25 : 8 $\approx$ 3 : 1.

86. d We can determine only the percentage of skin protein in Ghosh Babu's total body weight. But there is no data given about the percentage of skin in Ghosh Babu's body. Hence the answer is (d).

87. a Proportion of material other than water & protein in Ghosh Babu's body is $\frac{15}{100} = \frac{3}{20}$.

88. c Required percentage growth

$$= \frac{(68718 - 42137) \times 100}{42137}.$$

Students please note that to calculate the exact value of this expression, we need calculator. Since, options given are not very close to each other so we can approximate values. And using approximations we get the value of required ratio

$$= \frac{(68600 - 42000) \times 100}{42000} = \frac{2650}{42} = 63\%.$$

89. c

Books	1975	1980	Percentage growth
Primary	42137	68718	63%
Secondary	8820	20177	125%
Higher Secondary	65303	82175	26%
Graduate Level	25343	36697	45%

Hence, percentage growth is least for higher secondary books viz.26%.

90. b Again referring to the above table we can see that the percentage growth rate is maximum for secondary level books viz.125%.

91. d It can be seen from the given table that though primary level books have shown a consistent growth, it has declined in the year 1978. On the other hand even Secondary and Higher secondary level books have shown a consistent increase except for the year 1977 when it had declined. But the graduate level books have shown a consistent growth over the period.

For questions 92 to 95:

The data given the graph can be tabulated as given below :

College	1988-89	1989-90	1990-91
Private Engg. College	120	180	250
Govt. Engg. College	80	130	130
Regional Engg. College	40	70	100
IIT	30	40	80

92. d Total number of students in 1989–90

= (180 + 130 + 70 + 40) × 100 = 42000.

93. c Growth rate in number of students in Govt. Engg. College $= \frac{(120 - 80)}{80} = 50\%$

Growth rate in number of students in Private Engg. College $= \frac{(180 - 120)}{120} = 50\%$. Hence the growth rate is equal.

94. d Total number of students in 1990–91

= (250 + 130 + 100 + 80) 100 = 56000

Hence the total number of students in 1991-92

= 0.9 × 56000 = 50400.

Hence (d) is the correct answer

95. c Percentage of IIT students in 1990 – 91

$$= \frac{80}{560} = \frac{1}{7} = 14.28\%$$

For questions 96 to 99:

The data given in the question can be computed as :

96. b From the first week data we can arrive at the following work pattern of Bankatlal for the 1st month.

First Month :

	1st week	2nd week	3rd week	4th week
Hours of rest	2	5	2	7
Working hrs.	5	2	5	3
Wage per hour	Rs.20	Rs.10	Rs.20	Rs.10
Total Wage per day	Rs.100	Rs.20	Rs.100	Rs.20
Total Wage per week	Rs.600	Rs.120	Rs.600	Rs.120

Thus his total wage = (600+120+600+120) = Rs.1440

97. c Let us compile the data for 2nd, 3rd and 4th month.

Second Month :

	5th week	6th week	7th week	8th week
Hours of rest	3	7	3	7
Working hrs.	7	3	7	3
Wage per hour	Rs.20	Rs.10	Rs.20	Rs.10
Total Wage per day	Rs.140	Rs.30	Rs.140	Rs.30
Total Wage per week	Rs.840	Rs.180	Rs.840	Rs.180

Third Month :

	9th week	10th week	11th week	12th week
Hours of rest	4	6	4	6
Working hrs.	6	4	6	4
Wage per hour	Rs.20	Rs.10	Rs.20	Rs.10
Total Wage per day	Rs.120	Rs.40	Rs.120	Rs.40
Total Wage per week	Rs.720	Rs.240	Rs.720	Rs.240

Fourth Month :

	13th week	14th week	15th week	16th week
Hours of rest	0	8	0	8
Working hrs.	8	0	8	0
Wage per hour	Rs.20	Rs.10	Rs.20	Rs.10
Total Wage per day	Rs.160	0	Rs.160	0
Total Wage per week	Rs.960	0	Rs.960	0

Total wage for 1st month = Rs.1440

Total wage for 2nd month = (840 +180 +840 +180)
= Rs.2040

Total wage for 3rd month = (720 + 240 + 720 + 240)
= Rs.1920

Total wage for 4th month = (960+960)
= Rs.1920

Total wage for the 4 months
= (1440+2040+1920+1920)
= 7320

Hence the average salary = $\frac{7320}{4}$ = Rs.1830.

98. d Using the above data, we can revise the wage compilation for the third month as given below:

Third Month :

	9th week	10th week	11th week	12th week
Hours of rest	4	6	4	6
Working hrs.	6	4	6	4
Wage per hour or work	Rs.25	Rs.12.5	Rs.25	Rs.12.5
Fine per hour of rest	Rs.5	Rs.5	Rs.5	Rs.5
Total wage per day	Rs.150	Rs.50	Rs.150	Rs.50
Total fine per day	Rs.20	Rs.30	Rs.20	Rs.30
Effective wage per day	Rs.130	Rs.20	Rs.130	Rs.20
Total Wage per week	Rs.780	Rs.120	Rs.780	Rs.120

So now his third month age = (780+120+780+120) = Rs.1800.

Previously he used to earn Rs.1920 in the third month.

Hence change in Bankatlal's salary for the 3rd month = (1920 – 1800) = Rs.120.

99. d For the fourth month, the new wage compilation will be as given below :

Fourth Month :

	9th week	10th week	11th week	12th week
Hours of rest	0	8	0	8
Working hrs.	8	0	8	0
Wage per hour or work	Rs.25	Rs.12.5	Rs.25	Rs.12.5
Fine per hour of rest	Rs.5	Rs.5	Rs.5	Rs.5
Total wage per day	Rs.400	0	Rs.400	0
Total fine per day	0	Rs.40	0	Rs.40
Effective wage per day	Rs.400	-Rs.40	Rs.400	-Rs.40
Total Wage per week	Rs.2400	-Rs.240	Rs.2400	-Rs.240

So now his total wage for the 4th month
= (2400 + 2400 – 240 – 240) = Rs.4320.

Since the calculations for the first two months are made as per the old scheme of things, this has already been computed.

Total wage for 1st month = Rs.1440

Total wage for 2nd month = Rs.2040

Calculation for the third and fourth month are as per new calculations and they are :

Total wage for 3rd month = Rs.1800

Total wage for 4th month = Rs.4320

Therefore, total salary for the four months
= (1440 + 2040 + 1800 + 4320)
= Rs.9600.

100. d We know, Dividends + Retained earnings = Profit before tax – Tax.

Tax = Profit before tax – (Dividends + Retained earnings).

Figure (in Rs. Lakh)	1991	1992	1993	1994
Profit before Tax	315	170	525	790
Dividends + Retained earnings	170	100	305	510
Tax	145	70	220	280
Tax per rupee of 'Profit before tax'	0.46	0.41	0.42	0.35

Hence, tax per rupee of 'Profit before Tax' was the lowest in 1994.

101. a

Figure (in Rs. Lakh)	1991	1992	1993	1994
Sales	3270	2620	4725	6435
Share Capital	98	98	205	310
Sales per rupee of share capital	33.36	26.73	23.04	20.75

Hence, sales per rupee of share capital was the highest in 1991.

102. d

Figure (in Rs. Lakh)	1991	1992	1993	1994
Profit before Tax	315	170	525	790
Sales	3270	2620	4725	6435
Profit before tax per rupee of sales	0.09	0.06	0.11	0.12

Hence, profit before tax per rupee of sales was the highest in 1994.

103. a

Figure (in Rs. Lakh)	1991	1992	1993	1994
Reserves	80	220	290	535
Retained earnings	140	70	245	400
Percentage addition to reserves	175%	31.81%	84.48%	74.76%

Hence, the highest percentage addition to reserves was in 1991.

104. a From the above table, it is clear that the amount of reserves at the end of 1994

= (535 + 400) = Rs.935 lakh.

105. b It can be seen that the market share of CO in Kolkata has halved in 1994. None of the other products show such a drastic decrease in any city. Hence, percentage decrease in market share = 50%.

106. b Mumbai and Kolkata have two products whose market shares were increased. Chennai has 1 while Delhi has none.

107. d We can see that among the given options, the market share of HD decreased in Mumbai, Kolkata and Delhi. The market share of CO decreased in Kolkata, Delhi and Chennai and the market share of BN decreased in Mumbai.

108. a None of the products had 100% market share.

109. b Only MT doubled its market share in Kolkata in 1993-94.

110. a Percentage increase $= (160 - 130)\frac{100}{130}$

$= \frac{300}{13} = 23\%.$

111. b Interest in 1990-91 = 30% of 130 = Rs.39 lakh

Interest in 1991-92 = 40% of 160 = Rs.64 lakh

Hence, required difference = (64 – 39)

= Rs.25 lakh

112. d Total interest = (30% of 130) + (40% of 160)

= (39 + 64) = Rs.103 lakh.

If this total interest is charged on borrowed funds, then (20% of borrowed funds) = 103. Hence, borrowed funds = (5 × 103) = Rs.515 lakh.

113. d Retained profit in 1990-91 = (25% of 130)

= Rs.32.5 lakh

Retained profit in 1991-92 = (20% of 160)

= Rs.32 lakh

Hence, percentage change in retained profit

$= \frac{(32.5 - 32)}{32.5}$ = 1.5% lower.

114. c Total dividend earned by shareholders in 1991-92

= (8% of 160) = Rs.12.8 lakh.

For questions 115 to 119:

The graph given in the question can be expressed as a table given below.

Year	Import	Export	Trade Deficit
1987-88	17	11	6
1988-89	19	12	7
1989-90	21	16	5
1990-91	24	18	6
1991-92	20	18	2
1992-93	22	18	4
1993-94	23	21	2
1994-95	27	24	3
	173	138	

115. b Trade deficit = Imports – Exports, was the highest for the year 1988-89, viz. 7 billion dollars.

116. d Trade deficit is less than that in the succeeding year in 1987-88, 1989-90, 1991-92 and 1993-94.

117. c Required percentage $= \frac{18}{20} \times 100 = 90\%$

118. d In the last three years,

Imports = (22 + 23 + 27) = 72

and Exports = (18 + 21 + 24) = 63.

Hence, the required percentage $= \frac{63}{72} \times 100$

= 87.5% = 88% (approximately).

119. a The first statement is obviously true as the trade deficit in each year is less than the export earning. The export earning has remained constant for three years between 1990 and 1993. Hence, statement II is not true. Even statement III is not true as the exports in 1994-95 is more than the imports in 1993-94.

For questions 120 to 125:

The graph given in the question can be depicted in the following table:

	1989	1990	1991	1992
Journals	46	47	45	44
Magazines	31	39	45	50
Books	73	77	79	79
Total	150	163	169	173

120. c The highest change in the revenue obtained from journals is (47 – 45) = 2 in 1991.

121. a In 1992, percentage of total revenue that came from books = $\frac{79}{173} \times 100 = 45.6\% = 45\%$ (approximately).

122. b In 1990, there was an increase in revenue for all the 3 categories. In 1991, it increased for magazines and books.

And in 1992, it increased only for magazines. So the answer is b, viz. 2 years.

123. d Growth rate in 1992 over 1991 = $\frac{(173-169)}{169}$

= 2.36%. If this rate remained same in 1993 as well, then the revenue in 1993 would be $173 \times \left(1+\frac{2.36}{100}\right)$ = Rs. 177 lakh.

124. c Percentage growth in the total revenue from 1989 to 1992

$= \frac{(173-150)}{150} = 15.33\% = 15\%$ (approximately).

125. b Since time taken to manufacture Q by both the machines is the least, we have to manufacture only Q in order to maximize the output for the day. In such a case, total number of units of Q produced by M1 = $\frac{(8 \times 60)}{6}$ = 80 units and that by M2 = $\frac{(8 \times 60)}{6}$ = 80 units. So the maximum number of units that can be produced in one day

= (80 + 80) = 160 units.

126. d If M1 works at half of its normal efficiency, time taken by M1 to manufacture 1 unit of P = 20 min and Q = 12 min. For producing maximum number of units, we have to produce Q on M2 first as it takes only 6 min per piece. Also since at least one unit of P has to be manufactured and it is more efficient to do so on M2, we would do that. So time taken to manufacture 1 unit of P on M2 = 8 min. Hence, time remaining on M2 = (480 – 8) = 472. In this remaining time number of units of Q that can be manufactured on M2 = $\frac{472}{6}$ = 78 (only completed units taken). Now since it takes less time to manufacture Q on M1 as well, we will maximize Q on M1. Since 1 unit of number of units that can be produced = $\frac{(8 \times 60)}{12}$ = 40. Hence, the total number of units manufactured = (1 + 78 + 40) = 119 units.

127. a In order to minimize time required, we will manufacture P on M2 and Q on M1. Number of machine hours required to manufacture 30 units of P on M2 = (30 × 8) = 240 min = 4 hr. Number of machine hours required to manufacture 25 units of Q on M1 = (25 × 6) = 150 min = 2.5 hr. So total time taken = (4 + 2.5) = 6.5 hr or 6 hr 30 min.

128. a Since P has to be produced in more number than Q and since time taken to produce P is least on M2, to maximize the output utilize the entire time available on M2 for producing P. Number of units of P produced in this time = $\frac{(8 \times 60)}{8}$ = 60 units. Now since the number of units of Q should be one -third that of P, we should manufacture 20 units of Q. To manufacture this on M1, it would take (20 × 6) = 120 min. So there are still (480 – 120) = 360 min of M1 to be utilized. Now for every 3 units of P that is manufactured, we have to manufacture 1 unit of Q. To run one such cycle on M1, it would take (3 × 10 + 1 × 6) = 36 min. Hence in 360 min, we have 10 such cycles and utilize all the idle time of M1. Hence, to maximize the output under the given condition it is possible to have no idle time on any of the machines.

129. c The least efficient way is the option that gives least production with highest idle time. So we can compare the options in the following two ways. Assume that production is constant (viz. LCM of 48, 64, 53 and 71) in all 4 options and compare the corresponding idle time. Or we can assume the idle time to be constant (viz. LCM of 3, 12, 10 and 9) in all 4 options and compare the corresponding production. The latter method is

more preferable as finding LCM of idle time is easier. So LCM of 3, 12, 10, 9 = 180. If we assume that the idle time has to be 180 min, then as per option (a) we would get production $= \left(\frac{180}{3} \times 48\right) = 2{,}880$ units, as per option (b), we would get production $= \left(\frac{180}{12} \times 64\right) = 960$ units, as per option (c), production $= \left(\frac{180}{10} \times 53\right) = 954$ units and as per option (d), production $= \left(\frac{180}{9} \times 71\right) = 1{,}420$ units. Since option (c) gives the least production, it is the least efficient way.

130. a Total requirement of cloth
= Total number of shirts × Cloth required per shirt
= (20 + 30 + 30 + 10 + 10) × 1000 × 1.5 = 1,50,000 m.

131. b Total low quality cloth consumed
= 1.5 (30% of 30000 + 30% of 30000 + 40% of 10000 + 90% of 10000)
= 46,500 m.

132. c Total quantity of high quality cloth consumed by A-type shirts = (80% of 20000) × 1.5 = 24,000 m.

133. d We only know the relationship between the type of shirt and cloth used and type of shirt and dye used. We cannot find any relationship between type of cloth and dye used.

134. b Amount of low quality die used for C-type shirts
= (40% of 30000)
= 12,000 units.
Amount of low quality die used for D-type shirts
= (60% of 10000)
= 6,000 units.
Hence, required ratio $= \left(\frac{12000}{6000}\right) = 2 : 1.$

135. c Amount invested on B, C, D and E in year 1
= 4.6 + 5.8 + 3.11 + 10.6 = 24.11
Amount invested on B, C, D and E in year 3
= 18.7 + 21.2 + 7.7 + 29.8 = 77.4
∴ Percentage increase
$= \frac{77.4 - 24.11}{24.11} \times 100 \approx 221\%$

136. b Company E's investment for years 1 to 3
= 10.6 + 17.4 + 29.8 = 57.8
Company F's investment for years 1 to 3
= 7.8 + 25.3 + 60.1 = 93.2
∴ Ratio = 57 : 93 = 19 : 31

137. c Total investment in year 2
= 6.7 + 7.5 + 12.5 + 5.6 + 17.4 + 25.3 = 75
D's contribution in year 2 = 5.6
∴ Percentage contribution $= \frac{5.6}{75} = 7.4\%$

138. d As we can see from the table, none of the investments increases from year 1 to 3.
Hence, none of these.

139. b In year 2,
A + B + C = 6.7 + 7.5 + 12.5 = 26.7
D + E + F = 5.6 + 17.4 + 25.3 = 48.3
Percentage difference
$= \frac{48.3 - 26.7}{26.7} = 80.8\% \approx 81\%$

For questions 140 to 144:

To handle this type of questions, the best way is to express the data in tabular form.

Year	1989	1990	1991	1992	1993	1994	1995
Revenue	120	130	145	165	185	200	220
Expenditure	102	110	115	125	135	140	150
Profit	20	25	30	40	50	60	70

140. b The average revenue collected in the given 7 years
$= \frac{(120 + 130 + 145 + 165 + 185 + 200 + 220)}{7}$
= 166.42
which is approximately is Rs. 168 lakh.

141. a Expenses of 7 years add up to 877. Revenue of 7 years add up to 1165.
Hence, the required answer is $\frac{877}{1165} \approx \frac{880}{1170}$
$\approx$ 75%.

142. d We need to find the profit in each year.

Year	Profit percentage
1990	(5/20) × 100 = 25%
1991	(5/25) × 100 = 20%
1992	(10/30) × 100 = 33.33%
1993	(10/40) × 100 = 25%
1994	(10/50) × 100 = 20%
1995	(10/60) × 100 = 16.66%

From the above table, clearly, the answer is 1992, as in 1992 the profit is maximum, i.e. 33.33%.

143. d The growth in expenditure over the previous year can be expressed as:

Year	Growth in expenditure
1990	(8/202) × 100 = 7.8%
1991	(5/110) × 100 = 4.5%
1992	(10/115) × 100 = 8.7%
1993	(10/125) × 100 = 8%
1994	(5/135) × 100 = 3.7%
1995	(10/140) × 100 = 7.14%

Hence, it is maximum for 1992.

144. b Profit in 1994 = 60. Profit in 1995 = 70. Growth percentage in profit in 1995 over 1994 $= \left(\frac{10}{60}\right) \times 100$ = 16.66%.

Profit in 1996 will be (16.66% of 70) + 70 = Rs. 82 lakh.

145. a Lipton production is 1.64 (in '000 tonnes) which corresponds to 64.8% capacity. Maximum capacity will be 100%. For 64.8% it is 1.64 .

$\therefore$ For 100% it will be

$$\left(\frac{100}{64.8}\right) \times 1.64 \approx \frac{100}{65} \times 1.64$$

$\approx$ 2.53 (in '000 tonnes).

146. d This can be represented in the following manner.

	Production ('000 tonnes)	Capacity utilisation (%)	Total capacity (100%)	Unutilised capacity
	A	sB	C = A/B ×100	C - A
Brooke Bond	2.97	76.50	3.88	0.912
Nestle	2.48	71.20	3.48	1.003
Lipton	1.64	64.80	2.53	0.89
MAC	1.54	59.35	2.59	1.05

Hence, we find that the maximum unutilised capacity is for MAC, viz. 1,050 tonnes.

147. c 61.3 % $\equiv$ 11.6

$$\therefore 100\% \equiv \left(\frac{100}{61.3}\right) \times 11.6 \approx \left(\frac{100}{62}\right) \times 11.6 \approx 18.7$$

$\simeq$ 18.7 tonnes (in '000)

148. d From the data that is given, we cannot say anything about the price of coffee for the companies among others.

149. b Total sales of all brands

= (31.15 + 26.75 + 15.25 + 17.45) = Rs. 90.6 crore

Total sales value of others = 132.8 – 90.6 = Rs. 42.2 crore

$$\text{Required percentage} = \frac{42.2}{132.8} \times 100 \approx \frac{42}{132} \times 100$$

$$= 31.18 \approx 32\%.$$

150. b Originally for the fifth month, 4 people were scheduled to do coding. This would have cost them (10000 × 4) = Rs. 40,000. Now there are 5 people who are working on design in the fifth month.

The total cost for this would be (20000 × 5)

= Rs.1,00,000.

Hence, percentage change in the cost incurred in the fifth month $= \frac{(100000 - 40000)}{40000} \times 100 = 150\%.$

151. a As given in the previous question, it can be seen that the coding stage is now completed in 6th, 7th and 8th months. Number of people employed in the 6th month is 4 and in the 8th month is 5. In the 7th month also there are 5 people employed (from previous data). Hence, if we were to combine these months, we find that the total cost incurred in the coding stage = (5 + 5 + 4) × 10000 = Rs.1,40,000.

152. b The difference in the cost will arise only because of the following months: 5, 6 and 8. And we can compare the costs as given below

	Original scheme			New scheme		
Month	People	Cost per man/ month	Total cost for the month	People	Cost per man/ month	Total cost for the month
5	4	10000	40000	5	20000	1,00,000
6	5	10000	50000	4	10000	40,000
8	4	10000	40000	5	10000	50,000
	Total cost		Rs. 1,30,000	Total cost		Rs. 1,90,000

It can be clearly seen that the difference in the cost between the old and the new technique is Rs. 60,000.

153. d The cost incurred in various stages under the present scheme is as given below.

	Month	People	Cost per man/ month	Total cost for the month	Total cost for the stage
Specification	1	2	40000	80000	Rs. 2,00,000
	2	3	40000	120000	
Design	3	4	20000	80000	Rs. 2,40,000
	4	3	20000	60000	
	5	5	20000	100000	
Coding	6	4	10000	40000	Rs. 1,40,000
	7	5	10000	50000	
	8	5	10000	50000	
Testing	9	4	15000	60000	Rs. 75,000
	10	1	15000	15000	
Maintenance	11	3	10000	30000	Rs. 90,000
	12	3	10000	30000	
	13	1	10000	10000	
	14	1	10000	10000	
	15	1	10000	10000	

Hence, the most expensive stage is Design.

154. c If we look at the above table again, it is clear that the average cost for 5 consecutive month period is lowest for months 11 to 15.

155. d Total investment in the two districts in 1995

$= 2932.1 + 7081.6 \approx 10{,}000.$

Total investment in the two districts in 1996

$= 3489.5 + 8352 \approx 11840.$

Required percentage $= \dfrac{(11840 - 10000)}{10000} \approx 18\ \%.$

156. b Total investment in electricity and thermal energy in both the districts in 1995 = (815.2 + 632.4 + 2065.8 + 1232.7) = 4746.1. Total investment made in that year

$= 2923.1 + 7081.6$

$= 10004.7 \approx 10000$

Hence, required percentage is $\dfrac{4746.1}{10{,}000} \approx 47\%.$

157. b Percentage increase in investment in electricity $\approx \dfrac{300}{2070}$ =14%. Percentage increase in investment in chemical $\approx \dfrac{(986.4 - 745.3)}{745.31} \times 100$

$\approx \dfrac{240}{745} \approx 32\%.$

Percentage increase in investment in solar

$= \dfrac{428.6}{1792.1} \approx \dfrac{430}{1792} \approx 23\%$

Percentage increase in investment in nuclear

$= \dfrac{507.8}{1674.3} \approx \dfrac{500}{1670} \approx 29\%.$

Clearly percentage increase in investment in chemical is the highest.

158. c Total investment in Chittoor = 2923.1 + 3489.5

$= 6412.6 \approx 6410.$

Total investment in Khammam = 7081.6 + 8352

$\approx 15430.$

Required ratio $= \left(\dfrac{15430}{6410}\right) = 2.4.$ times.

159. a Percentage increase in the total investment in Khammam in 1996

$= \left(\dfrac{(8352 - 7081.6)}{7081.6}\right) \times 100 \approx \dfrac{1270}{7080} \approx 18\%$

Total investment in Khammam in 1997 will be $1.18 \times 8352 = 9855.36 \approx 9850$

160. a By observation gap between the Cost and the Sales is the highest in September. Thus, the highest profit is recorded in September.

161. d By observation difference between the Cost in March and May is the highest. Thus, in May total increase in Cost is the highest as compared to two months ago.

162. d By observation difference between the Cost in March and May is the highest. Also, the Sales in March is less as compared to the following months. Thus, in May percentage increase in sales two months before the highest.

163. d By observation increase in the number of employees from January to March is the less than the increase in profit from January to March. Thus, profit per employee is the highest in March.

164. b From January to November the number of employees that company takes = (16 – 11) × 1000 = 5000.

165. c

Year	Number of students employed	Number of students employed from finance	Number of students employed from marketing
1992	800	0.22 × 800 = 176	0.36 × 800 = 288
1993	640	0.17 × 650 = 110.5	0.48 × 650 = 312
1994	1100	0.23 × 1100 = 253	0.43 × 1100 =473
1995	1200	0.19 × 1200 = 228	0.37 × 1200 = 444
1996	1000	0.32 × 1000 = 320	0.32 × 1000 = 320
		1087.5	1837

$\therefore$ Difference in number of students employed from finance and marketing = 1837 – 1087.5 = 749.5 ≈ 750.

166. d Percentage increase in the average salary of finance

$$= \frac{9810 - 5450}{5450} \times 100 = 80\%$$

167. c Average annual rate at which the initial salary offered in software increases

$$= \frac{1}{4}\left[\frac{(8640 - 5290)}{5290} \times 100\right] = 15.83\% \approx 15.9\%$$

168. d As we don't have any information about the average monthly salary offered to 'Others', we cannot determine the answer.

169. b

Year	Number of candidates employed from finance	Number of candidates employed from software
1994	0.23 × 1100 = 253	0.21 × 110 = 231

Students seeking jobs in finance earned

= 253 × 7550 = Rs. 16,28,550

Difference in the amount earned

= 1910150 – 1628550

= Rs. 2.81 lakh per month

= Rs. 33.8 lakh per annum.

170. a

Company	Cost/Room
Lokhandwala	225/536 "225/535 = 0.42
Raheja	250/500 = 0.50
IHCL	275/600 = 0.45
ITC	300/300 = 1

From the right hand side column, for Lokhandwala Group, cost per room is least.

171. c In previous question, we have found out for which group the cost per room is least. To answer the second question, we need to take the reciprocals of fractions in the first question. Naturally, the answer will be same, i.e. Lokhandwala Group.

172. c Two projects are completed in 1998, one is Mumbai Heights and the second is Royal Holidays.

The cost of project is 250 + 225 = 475 crore. *Cost incurred = 475 + 47.5 = 522.5. (Students please note the last step. Rather than doing 1.1 × 475, it is convenient to do 475 + 10% of 475, which is = 475 + 47.5)

173. a Four projects are completed in 1999. They are: (i) Majestic Holiday, (ii) Supremo Hotel, (iii) Windsor Manor and (iv) Leela Hotels. It is very much similar to previous situation.

The cost of project is 250 + 300 + 275 + 235 = 1060

Hence, the cost incurred = 1060 × $(1.1)^2$

= 1282.6 crore

174. b Students! read the question carefully. It says what is the cost of projects completed by 2000.

It will be addition of previous two answers + Cost incurred for the projects completed in 2000. Approximate cost of projects completed by 2000 is 1282.6 + 522.5 + (250 × $(1.1)^3$) ≈ 2140.

175. a

Year	Male population	Female population	Total	Per capita production
1990	34	36	70	5/70 = 0.071
1992	35	37	72	7/72 = 0.09
1994	39	37	76	7.6/76 = 0.1
1996	43	40	83	7/83 " 7/84 = 0.08

From the table, it is clear that in 1990, the per capita production of milk was least.

176. d We can prepare a similar kind of table that we prepared for previous question. This table prepared is for food grains.

Year	Total population	Per capita production
1992	72	20/72 = 0.27
1993	74	22/74 = 0.297
1994	76	25/76 " 25/75 = 0.33
1995	80	31/80 " 30/80 = 0.375

Hence, per capita production of foodgrains was maximum in 1995.

177. c Percentage increase in production of food

Year	Production of foodgrains	% increase = X	Production of milk	% increase = Y	X – Y
1992	20		7		
1993	22	2/20 = 10%	8	1/7 = 14.2%	–4.28%
1994	25	3/22 = 13.6%	7.5	–0.5/8 = –6.2%	19.8%
1995	31	6/25 = 24%	6.8	-0.7/7.5 = –9.3%	33.3%
1996	27	– 4/31 = – 12.9%	7	0.2/6.8 = 2.9%	15.8%

From the last table, it is clear that in 1995, the difference between percentage increase in production of foodgrains and percentage increase in production of milk was maximum.

178. c

Year	Per capita consumption of milk = A	Calories consumed = X(X = 320x A)	Per capita consump-tion of foodgrains = B	Calories consumed = Y(Y = 160 x B)	X + Y
1993	0.11	35.2	0.28	44.8	80
1994	0.1	32	0.33	52.8	84.8
1995	0.093	29.76	0.37	59.2	88.96
1996	0.08	25.6	0.33	52.8	78.4

From the last column of the table, it is clear that the per capita consumption of calories was highest in 1995.

179. c

Year	Product-ion of milk = A	Availability of nutrient= 120A =X	Production of foodgrains = B	Availability of nutrient= 80B =Y	X +Y
1993	8	960	22	1760	2720
1994	7.5	900	25	2000	2900
1995	6.8	816	32	2560	3376
1996	7	840	27	2160	3060

Clearly, from the table, availability of nutrient is maximum in1995.

180. c

Year	Total population	Per capita consumption of nutrient
1993	74	2720/74 = 36.75
1994	76	2900/76 = 38.15
1995	80	3376/80 = 42.2
1996	83	3060/83 = 36.86

From the table, it is clear that the per capita consumption is maximum in 1995.

For questions 181 to 186:

The values in the graph can be represented in the table given below.

Here O.H. is overheads and Int. is interest, P/C is profit/ cost.

Year	Raw Mat.	Wages	O.H.	Int.	Profit
1991	60	45	10	50	15
1992	50	55	20	55	25
1993	65	60	15	55	20
1994	75	65	25	50	-30
1995	80	65	20	50	15
Total	330	290	90	260	45

181. b We can see that the increase in raw material has been maximum in 1993, viz. 15 points increase.

182. c The change in the profit is maximum in 1993-94. In this year, there is a 50 points drop in the profits.

183. a It can be seen that the interest has remained more or less constant over the given period.

184. c

Year	Raw Mat.(RM)	O.H.	OH/RM x 100
1991	60	10	16.66%
1992	50	20	40%
1993	65	15	23.07%
1994	75	25	33.33%
1995	80	20	25%

Thus, it can be seen from the above table that the overheads as a percentage of raw material is maximum for 1992.

185. b The total profits over the period

$= (15 + 25 + 20 - 30 + 15) = 45$

Total costs = (330 + 290 + 90 + 260) = 970

Hence, profit/costs $= \frac{45}{970} = 4.6\% = 5\%$ (Approximately)

186. b If the interest component is not included in the cost, the data can be represented as follows.

Year	Cost	Profits	P/C x 100
1991	115	15	13.04%
1992	125	25	20%
1993	140	20	14.28%
1994	165	-30	-
1995	165	15	9.09%

Hence, we can see from the table that maximum profit per unit cost is in 1992.

187. a If the amount of tariff consumed by sector 1 is the same, then we can directly compare the tariffs to the two regions and get the answer.

	Tariff 1994-95	% change over 1991-92	Tariff 1991-92
Region 1	425	+15%	369.5
Region 2	472	+5%	449.5
Region 3	420	-4%	437.5
Region 4	415	+8%	384.25
Region 5	440	+10%	400
	2172		2040.75

Hence, we can see that as compared to 1991-92, the net tariff in 1994-95 increased by

$$\frac{(2172 - 2040)}{2040} = 6.5\%$$

188. b

	Tariff 1994-95	% change over 1991-92	Tariff 1991-92
Sector 1	420	-4	437.5
Sector 2	448	+7	418.7
Sector 3	432	+6	407.5
Sector 4	456	+10	414.5
			1678.3

Hence, the average tariff for region 3 in 1991-92 is $\frac{1678.3}{4} = 419.5 = 420$ (Approximately)

189. a In 1994-95, the power consumed by various sectors out of 7875 megawatts can be given as follows.

Category	Percentage	Consumption in 94-95
Urban	25	1969
Domestic	20	1575
Industrial	40	3150
Rural	15	1181
		7875

Since there was a 10% decrease in domestic consumption of power in 1994-95, the domestic consumption in 1991-92 $= \left(\frac{1575}{0.9}\right) = 1750$ megawatts. But this constitutes 20% of total power consumed in 1991-92 and the rural consumption constitutes 15% of total power in 1991-92.

Hence, in 1991-92 the rural consumption

$$= (1750 \times \frac{15}{20}) = 1312 \text{ megawatts.}$$

190. d We only know the tariff rates for the two years for various regions and sectors. But we do not know the category-wise break-up of tariffs, i.e. the rates for urban sector is not known. In the light of this, we cannot answer this question.

191. b Let us evaluate each of the above statements.

The average tariff in region 4

$$= \frac{(415 + 423 + 441 + 451)}{4} = 432.5 \text{ p/kwh}$$

$$\text{region 2} = \frac{(472 + 468 + 478 + 470)}{4} = 472 \text{ p/kwh}$$

$$\text{region 5} = \frac{(440 + 427 + 439 + 446)}{4} = 438 \text{ p/kwh}$$

Hence, the average tariff in region 2 is higher than in region 5. This statement is true. Note that we cannot evaluate the third statement at all.

192. a In 1974, agricultural loans amounted to

= Rs. 34.54 million.

Loans from rural banks in 1974

= (260 × 98 × 243)

= Rs. 6.19 million.

Hence, total amount of loans

= (34.54 + 6.19)

= Rs. 40.73 million.

Hence, percentage of agricultural loans

$$= \frac{34.54}{40.73} = 84.79\% = 85\% \text{ (Approximately)}$$

193. b

Year	No. of rural banks	Average no. of loans	Total no. of loans
1970	90	28	2520
1971	115	39	4485
1972	130	52	6760
1974	260	98	25480
1975	318	121	38478
1980	605	288	174240
1981	665	312	207480
1983	840	380	319200

So the total number of loans up to 1980 = (2520 + 4485 + 6760 + 25480 + 38478 + 174240) = 251963

And the total number of rural loans in 1983 = 319200

Hence, $\frac{251963}{319200} = 78.93\%$

= 80% (Approximately).

194. d

Year	Total no. of loans	Increase
1970	2520	-
1971	4485	1965
1972	6760	2275
1974	25480	18720
1975	38478	12998
1980	174240	-
1981	207480	33240
1983	319200	-

Thus, we find that the maximum increase in the

number of loans for rural banks is in 1980-81.

Note: Students please note that we have not calculated the increase for 1970, 1980 and 1983 as their previous years' figure is not known.

195. b The value of agricultural loan in 1983 is Rs. 915.7 million. But this at consumer price index (CPI) = 149. So if we want this value at 1970 CPI, viz. 43, it would simply be

$$\frac{43 \times 915.7}{149} = 264.26.$$

196. c Students please note that what they are really asking is for which year the average number of loans is the least, and we can see in 1970.

197. b From 1970 to 1983, in 13 years the number of agricultural loans went up from 18,300 to 2,11,600, an increase of 1,93,300. So percentage increase in this $= \frac{193300}{18300} = 1057$. However, this growth is spread across 13 years. Hence, simple annual rate of increase $= \frac{1057}{13} = 81.3\% = 81$ (Approximately).

198. a The CPI in 1970 is 43. But it has to be taken as 105. Presently in 1983 and 1975, the CPI is 149 and 78 respectively. Hence, they should actually be taken as $\left(149 \times \frac{105}{43}\right) = 363.83$ and $\left(78 \times \frac{105}{43}\right) = 190.46$ respectively. Hence, their difference = (363.83 – 190.46) = 173.37 = 174 (Approximately).

199. b Total value of loans

= Rural bank loans + Agricultural loans.

Rural bank loan in 1980 = (605 × 288 × 567) = Rs. 98.79 million.

Total value of agricultural loan in 1980

= Rs.498.4 million.

Hence, total loans in 1980

= (98.79 + 498.4) = 597.19.

But this is at a CPI = 131

If it is to be calculated at 1983 CPI, viz. 149, then its value will be $597.19 \times \left(\frac{149}{131}\right) =$ Rs. 679.24 million

= Rs. 680 million (Approximately).

200. a For, if any one of them collects the maximum number of coins, the remaining three should collect the minimum number of coins. To have distinct, even, atleast 10 coins; they will have to collect 10, 12, 14 coins. So if the three of them collect (10 + 12 + 14) = 36 coins, the fourth one has to collect (100 – 36) = 64 coins which has to be the maximum by any one person.

201. c Since A has collected 54 coins out of 100, he should obviously be the person who collected the maximum number of coins. For the difference between him and the second highest person to be minimum, the second highest person should collect the maximum number of coins possible under the given conditions. And for this to happen, the remaining two should collect the minimum number of coins. So if the two of them collect 10 and 12 coins, i.e. 22 coins between themselves, the third person would have to collect (100 – 54 – 22) = 24 coins. Hence, the difference between him and the highest person should at least be (54 – 24) = 30.

202. d If A has collected 54 coins, the remaining three of them should collect (100 – 54) = 46 coins between themselves.

Let us assume that C has collected 10 coins. So B will collect (2 × 10) + 2 = 22. So A will collect (46 – 10 – 22) = 14 coins, which is a possible combination.

Let us now assume that C picks up 12 coins. So B should pick up (2 × 12) + 2 = 26. So A will have to collect (46 – 12 – 26) = 8 coins.

This combination is not possible. It can be concluded that C cannot pick up more than 10 coins and hence B has to pick up 22 coins to satisfy the given condition.

203. a If we were to take the highest quantity supplied from various states in different months, we will get the following table:

Month	Highest supply	Total	Total percentage
April	7	73	9.5%
May	12	13	92.3%
June	9741	18015	54.0%
July	71497	90247	79.2%
August	77675	97961	79.2%
September	56602	110514	51.2%
October	79591	92219	86.3%
November	41872	45413	92.2%
December	14822	16578	89.4%
January	10922	11438	95.4%
February	11183	11285	99.0%
March	683	769	88.8%

Hence, we find that the highest percentage of apples supplied by any state is 99% (J & K in February).

204. c If we were to add the quantity of apples supplied by various states, it can be found that HP supplied 2,31,028 tonnes, UP supplied 258 tonnes, and J & K supplied 2,62,735 tonnes. Thus, it was J & K that supplied the maximum number of apples.

205. c If J & K supplied the highest quantity of apples, it is obvious that it would supply the highest percentage of total apples supplied as well.

206. c It is given that in case demand is more than the supply, additional demand is met by taking the stock from the cold storage. So it can be figured out that in all those months when supply was greater than the demand, no stock would have been used from the cold storage. Looking at the table, we can find that during the period May to September, no stock was taken from the cold storage, and hence supply should have been greater than the demand.

207. b Total quantity of apples supplied to Delhi during the year was (231028 + 258 + 262735)

= 494021 tonnes = 494021000 kg

If one tree yields 40 kg of apple, then the number of trees required to yield 49,40,21,000 kg

$$= \frac{494021000}{40} = 1,23,50,525 \text{ trees}$$

= 12.5 million trees (approximately)

208. d If there are 250 trees per hectare, then area required to have $12350525 = \frac{12350525}{250}$

= 49402 = 49450 (approximately)

209. b It can be seen from the graph that the southern region showed the highest growth in number of households in all the income categories for the period.

210. d We only know the total number of households for all four regions combined. Nowhere have they given the region-wise break-up of this value. In the light of this, the given question cannot be answered.

211. b It is very clear from the graph that the percentage increase in total number of households for the northern region for upper middle income category is 200%.

212. a As seen from the table, the average income of high-income group in 1987-88 is Rs. 75,000.

213. b The total income of high income category in 1987-88 is Rs. (5000 × 75000).

The total income of upper-middle class category in 1987-88 is Rs. (10000 × 50000).

Hence, the current ratio of their total incomes = 3 : 4 = 0.75

Since the number of households in each category were equally distributed in all regions, we can have the following table for high income category.

Region	Households in 1987-88	Percentage increase	Households in 1994-95
North	1250	240%	4250
South	1250	425%	6562.5
East	1250	175%	3437.5
West	1250	150%	3125
Total	5000		17375

The average household income for high-income category increased by 90%. Hence, average household income for this category in 1994-95

= (75000 × 1.9) = Rs. 1,42,500

Hence, the total income for high-income category in 1994-95 = (17375 × 142500) = Rs. 2,476 million

The same table can be drawn for upper-middle class category as follows:

Region	Households in 1987-88	Percentage increase	Households in 1994-95
North	2500	200%	7500
South	2500	340%	11000
East	2500	125%	5625
West	2500	140%	6000
Total	10000		30125

The average household income for upper-middle class category increased by 60%. Hence, the average household income for this category in 1994-95 = (50000 ×1.6) = Rs. 80,000

Hence, the total income for high-income category in 1994-95 = (30125 × 80000) = Rs. 2,410 million

Hence, the ratio of total income for these two categories in 1994-95 = $\frac{2476}{2410} = 1.02$.

Hence, percentage increase in ratio

$$= \frac{(1.02 - 0.75)}{0.75} = 36\%$$

214. a For northern region, we can draw the following table for 1987-88.

Category	Households in 1987-88	Average household income	Total income (Rs. in millions)
Middle income	10000	Rs. 30,000	300
Upper-middle	2500	Rs. 50,000	125
High income	1250	Rs. 75,000	93.75
Total	13750		518.75

Hence, the average income for northern region

$$= \frac{518.75}{13750} \times 10^6 = \text{Rs. } 37{,}727$$

215. b It is said that Gopal and Ram invested equal amounts initially. Let the amount paid by both of them to Krishna be 2x and 3x respectively. Gopal further invested Rs. 2 lakh. Hence, we can say (2x + 2) = 3x or x = 2 lakh. Hence, the initial amounts paid by Gopal and Ram to Krishna is 4 lakh and 6 lakh. So Gopal and Ram together put in (6 + 6) = 12 lakh initially (note that this includes Rs. 2 lakh put in by Gopal later). The total revenue generated is 25% of 12 lakh = 3 lakh.

The revenue from coconut and lemon trees are in the ratio 3 : 2. Hence, 3 lakh when divided in the ratio 3 : 2 gives Rs. 1,80,000 from coconut and Rs. 1,20,000 from lemons. And since each coconut costs Rs. 5, the total output of coconut would be $\left(\frac{180000}{5}\right)$ = 36000

216. a Lemon and coconut trees were planted on equal areas of land, viz. 5 acres each. The value of lemon output per acre of land = $\left(\frac{120000}{5}\right)$ = 0.24 lakh per acre.

217. a The total revenue of Rs. 3,00,000 was divided equally by Gopal and Ram.

Hence, the amount received by Gopal in 1997

$$= \frac{1}{2} \times 300000 = \text{Rs. } 1.5 \text{ lakh}$$

218. b The ratio of the number of trees of coconut and lemon was 5 : 1. Since the number of lemon trees is 100, the number of coconut trees is 500. So they totally obtained a revenue of Rs. 1,80,000 from 500 coconut trees.

Hence, the value per tree = $\left(\frac{180000}{500}\right)$ = Rs. 360.

219. d We have not been given the cost of one lemon. In the light of this fact, we cannot find the number of lemons produced and hence the required ratio cannot be determined.

220** .b* Profit = Revenue – Variable Cost – Fixed Cost = Revenue – (Variable Cost + Fixed Cost). If we consider (Fixed Cost + Variable cost) as total cost, then as long as the revenue is higher than the total cost, there is a profit. In case the revenue is less than the total cost there would be a loss. If we are to compile the data given in the question it would be as follows:

Production	Fixed cost (Rs.)	Variable cost (Rs.)	Total cost (Rs.)	Revenue (Rs.)	Profit /loss (Rs.)
9	70	126	196	180	–16
10	70	140	210	200	–10
12	70	168	238	240	+2
20	70	280	350	400	+50
30	70	420	490	600	+110
40	100	560	660	800	+140
50	100	700	800	1,000	+200

Thus, we can say that at a production of 12 units, there is a profit of Rs. 2. Above 12 units there is always a profit and below 12 units there is loss. Hence, to make sure there is no loss, one has to manufacture a minimum of 12 units.

* The answer is clearly not indeterminable, it should be 12 units, but among the options given the one closest to it is 10 units.

221. a It can be seen that at 20 units there is a profit of Rs. 50. Below this the profit will reduce.

Hence, to ensure that the profit is at least Rs. 50, then 20 units have to be manufactured.

222. b Let us verify for the given options.

Production	Fixed cost (Rs.)	Variable cost (Rs.)	Total cost (Rs.)	Revenue (Rs.)	Profit/loss (Rs.)	Profit/ unit (Rs.)
25	70	350	420	500	+80	3.20
34	70	476	546	680	+134	3.94
35	100	490	590	700	+110	3.14
40	100	560	660	800	+140	3.50

Hence, we can see that to maximise profit per unit, we need to manufacture 34 units.

223. b Extending the above table for 45 units, we get

Prod-uction	Fixed cost (Rs.)	Variable cost (Rs.)	Total cost (Rs.)	Reven-ue (Rs.)	Profit/ loss (Rs.)	Profit/ unit (Rs.)
45	100	630	730	900	+170	3.77

Thus, it can be figured out that still he has to manufacture 34 units.

224. b Referring to the table in question 220, we can see that if the fixed cost increases by Rs. 40, the profit will reduce by Rs. 40.

Hence, we can see that at 10 units he will make a loss of Rs. 30 and at 20 units he will make a profit of Rs. 10.

Hence, the answer has to be between (b) and (c). Let us verify for them:

Production	Fixed cost (Rs.)	Variable cost (Rs.)	Total cost (Rs.)	Revenue (Rs.)	Profit/ loss (Rs.)
15	110	210	320	300	–20
19	110	266	376	380	+4

Thus, we see that to make sure there is no loss, he has to manufacture 19 units.

225. c The data can be represented in the following table.

	Plywood		Saw timber		Logs	
	Price	% increase	Price	% increase	Price	% increase
87	3	–	10	–	15	–
88	3	–	10	–	16	6.67%
89	4	33.33%	12	20%	18	12.5%
90	5	25%	10	–	15	–
91	4	–	13	30%	18	20%
92	6	50%	15	15.38%	19	5.55%
93	7	16.66%	19	27%	20	5.26%

Thus, we can see that the maximum increase is 50%.

226. b

	Price in 1987	Price in 1993	Percentage increase
Plywood	3	7	133.33%
Saw timber	10	19	90%
Logs	15	20	33.33%

Thus, we see that the maximum percentage increase over the period is shown by plywood.

227. b Since the price of saw timber is given in rupees per tonne and that of log is given in rupees per cubic metre, we cannot compare the two. Hence, using the given conversion, let us convert the price of saw timber in per cubic metre. The table will be as follows:

(**Note:** 1 tonne $= \frac{4}{3}$ = 1.33 cubic m)

Year	Saw timber (Price in Rs./tonnes)	Saw timber (Price in Rs./cubic metres)	Logs price in (Rs./cubic metres)	Difference in price
1989	12	9	18	9
1990	10	7.50	15	7.50
1991	13	9.75	18	8.25
1992	15	11.25	19	7.75

Thus, we see that the difference is least in the year 1990.

228. d As in the previous table, we can draw a similar table for saw timber and logs.

(**Note**: One tonne of plywood $= \frac{10}{7}$ cubic m = 1.43 cubic m and one tonne of saw timber $= \frac{5}{4}$ cubic m = 1.25 cubic m.

Year	Saw timber (Price in Rs./ tonnes)	Saw timber (Price in Rs./cubic metres)	Plywood (Price in Rs./ tonnes)	Plywood (Price in Rs./cubic metres)	Difference in price
1989	12	9.60	4	2.80	6.80
1990	10	8.00	5	3.50	4.50
1991	13	10.40	4	2.80	7.60
1992	15	12.00	6	4.20	7.80

Hence, it can be seen that the difference is maximum for 1992.

229. d Note that one tonne $= \frac{4}{3}$ m^3 = 1.33 m^3, for both plywood and saw timber.

In 1993, price of logs = Rs. 20 per cubic metre.

Price of plywood $= \left(\frac{7}{1.33}\right)$ = Rs. 5.26 per cubic metre.

And price of saw timber $= \left(\frac{19}{1.33}\right) = 14.28$ per cubic metre.

Now the sales volume of plywood, saw timber and logs are in the ratio 4 : 3 : 3. So the average realisation per cubic metre of sales is indeed the weighted average.

This is given as

$$\frac{\left[(4\times5.26)+(3\times14.28)+(3\times20)\right]}{(4+3+3)}$$

= Rs. 12.4

= Rs. 13 (Approximately)

230. c The only change would be the accounting for price increase. This is given as

$$\frac{(4\times5.26\times1.05)+(3\times14.28\times1.01)+(3\times20\times1.10)}{(4+3+3)}$$

= Rs. 13.15

For questions 231 to 233:

Place of worship	Number of flowers before offering	Number of flowers offered	Number of flowers left
1	(15/8)y	y	(7/8)y
2	(7/4) y	y	(3/4)y
3	(3/2) y	y	y/2
4	y	y	0

Starting from the fourth place of worship and moving backwards, we find that number of flowers before entering the first place of worship is $\frac{15}{8}y$.

231. c Hence, number of flowers before doubling = $\frac{15}{16}y$

(but this is equal to 30)

Hence, y = 32

232. c The minimum value of y so that $\frac{15}{16}y$ is a whole number is 16.

Therefore, 16 is the minimum number of flowers that can be offered.

233. b For y = 16, the value of $\frac{15}{16}y = 15$.

Hence, the minimum number of flowers with which Roopa leaves home is 15.

For questions 234 to 236:

Game	Opening balance	Player's pick		Dealer's pick		Closing balance
		Debit (–)	Credit (+)	Debit (–)	Credit (+)	
1	0	0	8	16	0	-8
2	-8	0	10	0	10	12
3	12	0	6	6	0	12
4	12	0	8	16	0	4

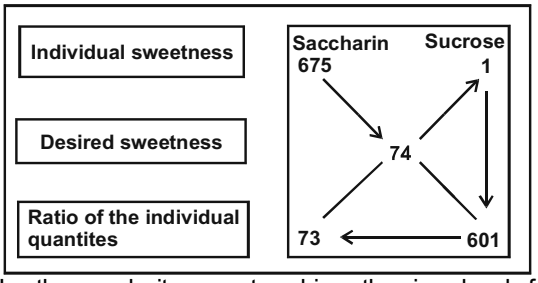
234. a Hence, we see that the maximum gain is Rs. 12.

235. b Since the maximum negative that Ghosh Babu goes into is –8, he should begin with at least Rs. 8, so that he does not have to borrow any money at any point.

236. d From the above table it is evident that in four games, Ghosh Babu makes a profit of Rs. 4.

Hence, if the final amount left with Ghosh Babu is Rs. 100, the initial amount that he had would be Rs. 96.

237. c If the mixture is to be made 100 times as sweet as glucose, its sweetness should be 74. The ratio in which saccharin and sucrose be mixed to get the above level of sweetness is given by the following alligation table.



In other words, it means to achieve the given level of sweetness, you need to add 601 g of sucrose to 73 g of saccharin. Hence to 1 g of saccharin, the amount of sucrose to be added is $\frac{601}{73}$ = 8.23 g.

238. a $\frac{\left[(0.74)+(1.000)2+(1.7)3\right]}{6} = 1.31$.

239. a From the graph, we know the percentage growth in sales are:

	Previous sales	Current sales	Difference	Percentage
1995-96	100	250	150	150%
1996-97	250	300	50	20%
1997-98	300	290	-10	–3.33%
1998-99	290	680	390	134.5%

It is but obvious from the above table that the maximum percentage increase relative to previous year occurred in 1995-96.

240. d From the graph, we can again calculate the growth in profits.

	Previous profit	Current profit	Difference	Percentage
1995-96	2.5	4.5	2	80%
1996-97	4.5	6	1.5	33.33%
1997-98	6.0	8.5	2.5	41.66%
1998-99	8.5	12	3.5	41.2%

The highest percentage growth in net profit relative to the previous year was achieved in 1995-96.

241. b

	Net profit	Net sales	Ratio
1994-95	2.5	100	0.025
1995-96	4.5	250	0.02
1996-97	6	300	0.02
1997-98	8.5	290	0.03
1998-99	12	680	0.018

The profitability is maximum for 1997-98.

242. d It may be seen that profitability does not follow a fixed pattern as the first three statements try to generalize the profitability. They are not applicable.

243. c Total trade with a region is defined as: The sum of exports and imports from that region, from the pie charts for 1997-98, we have the following sectors occupying maximum area.

	Country	Exports	Imports	Trade
H	OPEC	3397.9	9379.2	12795.1
I	Asia	6796	5709	12505
G	East Europe	3397	7748	11145.9
C	EU	4757	4893.5	9650.5
A	USA	6456	3670	10126

H – OPEC has the maximum trade.

244. b From the pie chart, the region having lowest trade is K.

1% of imports + 1% of exports

$\therefore$ Indian exports are 1% of 3397.9 which is roughly 340 million USD.

245. a

	Imports to India	Exports from India	Trade deficit
A	3670.11	6456.01	–2785.9
B	2038.95	2038.74	0.21
C	4893.48	4757.06	136.42
D	2446.74	2038.74	408
E	2038.95	2038.74	0.21
F	815.58	1019.37	–203.79
G	7748.01	3397.9	4350.11
H	9379.17	3397.9	5981.27
I	5709.06	6795.8	–1086.74
J	1631.16	1698.95	–67.79

So, we see that region H has highest trade deficit of approximately \$6,000 million or \$6 billion.

246. a From the pie chart for 1997-98, we get that USA which is a region A has the lowest trade deficit.

(9% of imports – 19% of total exports)

$$\left(\frac{9}{100}\times 40779 - \frac{19}{100}\times 33979\right)$$

= \$– 2785.9 million.

247. b From the pie chart, we know that the exports have increased from three regions A, G and H as follows.

	Country	1998-99	1997-98
A	USA	7395.4	6456
G	East European countries	3858.5	3397.9
H	OPEC	3215.4	3397.9

Also the exports for 8 months have been given. According to new directions, before question 247, we need to calculate exports for 12 months

$$\frac{21436\times 12}{8} = \$32{,}154 \text{ million.}$$

The maximum percentage increase is therefore from region A.

248. b India's total trade deficits are as follows.

	Imports	Exports	Deficit
1997-98	40779	33979	6800
1998-99	42189	32154	10035

Total imports for 1998-99

$$= \frac{28126\times 12}{8} = \$42{,}189 \text{ millions}$$

Similarly, exports for 1998-99 = $\frac{28126\times 12}{8}$

= \$32,154 millions

Percentage growth rate = $\frac{10035-6800}{6800}\times 100$

= 47.6%

249. a The price changes for each commodity are as follows.

	Ending	Beginning	Difference	Percentage
Arhar	2125	1700	425	25
Pepper	19275	18525	750	4
Sugar	1435	1440	5	–0.3
Gold	3820	4250	330	7.8

The highest price change from the graph and the above is definitely for Arhar.

250. c The price volatility for each individual.

	Highest price	Lowest price	Difference	Average price	PV
Arhar	2300	1500	800	1900	0.42
Pepper	19500	17350	2250	18425	0.12
Sugar	1500	1410	90	1455	0.062
Gold	4300	3800	480	4050	0.12

The price volatility for sugar is least, hence answer choice is (c).

Note: Average price can be calculated by highest price, lowest price, ending and beginning price.

251. d Let us assume Mr X invested Rs. 100 in each commodity.

	Price increase percentage	Income on Rs. 100
Arhar	25	25
Pepper	4	4.0
Sugar	–0.3	–0.3
Gold	–7.8	–7.8
		21.5

$\therefore$ His income is Rs. 21.5 on Rs. 400.

$\therefore \quad \frac{21.5}{400} \times 100 = 5.4\%$ profit

252. b As per the table in question 250, the maximum PV is around 40%.

253. c Bangladesh has highest drinking water facility and hence can not be dominated by any country.

Similarly Philippines has highest sanitation facilities and hence cannot be dominated.

254. b Statement A > Statement B only if statement A has higher percentage in total coverage for both drinking water and sanitation facilities taken independently and not as a total of the two facilities.

Thus, only statement B and statement D are

India > China

(81 > 67 and 29 > 24)

India > Nepal

(81 > 63 and 29 > 18)

Also China > Nepal (67 > 63 and 24 > 18)

255. c Let the urban population be x and rural population be y.

From the sanitation column, we have

$0.7x + 0.14y = 0.29(x + y)$

$0.41x = 0.15y$

$\therefore \quad x = \frac{15}{41}y$

$\therefore$ Percentage of rural population

$$= \frac{y}{x+y} \times 100 = \frac{y}{\frac{15}{41}y + y} \times 100$$

$$= \frac{41}{56} \times 100$$

$$= 73.2\%$$

256. a In the same way as the previous questions, we can find percentage of rural population for Philippines, Indonesia and China.

P	50%
I	66.66%
C	79.8%

Thus, P < I < C

257. d India is not on coverage frontier because

(i) it is below Bangladesh and Philippines for drinking water.

(ii) for sanitation facilities it is below Philippines, Sri Lanka, Indonesia and Pakistan.

For questions 258 and 259:

The disparity for the coverage of rural sector is as follows.

	Rural sector	**Urban sector**
I	65	15
B	52	20
C	49	23
P	47	5
P	20	4
I	22	6
S	–5	20
N	51	30

Note: Disparity = (Percentage denoting drinking facilities coverage – Percentage denoting sanitation coverage),

For example, rural sector of India = 79 – 14= 65%

Thus, as it can be seen from the table, in rural sector the country with most disparity is India (79 – 14) = 65%.

And the country with least disparity in urban sector is Philippines (92 – 88) = 4%

260. b Total exports = Software export + Hardware export + Peripherals export

Hence, total export as a percentage of IT business:

For 1994-95 $= \frac{668}{2041} \times 100 = 32.7\%$

For 1995-96 $= \frac{775}{2886} \times 100 = 26.8\%$

For 1996-97 $= \frac{1383}{3807} \times 100 = 36\%$

For 1997-98 $= \frac{1970}{5031} \times 100 = 39\%$

For 1998-99 $= \frac{2672}{6052} \times 100 = 44\%$

261. a Percentage growth for 1995-96 = 41%,

1996-97 = 32%, 1997-98 = 32%, 1998-99 = 20%.

262. c Annual hardware exports did not decline steadily during 1994-99.

Annual peripheral exports did not increase steadily during 1994-99.

IT business in training during 1994-99

= 107 + 143 + 185 + 263 + 302 = 1000

IT business in maintenance during 1994-99

= 142 + 172 + 182 + 221 + 236 = 953

Hence, option (c) is correct.

263. d Total IT business hardware activity

in 1995-96 = 1037 + 35 = 1072

in 1996-97 = 1050 + 286 = 1336

in 1997-98 = 1205 + 201 = 1406

in 1998-99 = 1026 + 4 = 1030

Clearly, 1998-99 does not dominate 1996-97.

264. d In this question, there are two activities — hardware and peripherals. Thus, for year X to dominate year Y, at least one activity in year X has to be greater than that in year Y and the other activity in year X has to be greater than or equal to that in year Y. In (a), (b) and (c), while hardware dominates in one year, the peripherals dominate in the other.

265. a If the total number of factories is 100, then the total number of employees = 60 × 100 = 6000 of which 64.6% = 3876 work in wholly private factories.

Since the number of wholly private factories = 90.3,

the answer $= \frac{3876}{90.3} = 43.$

Short cut: $0.64 \times \frac{60}{0.903} < \left(\frac{2}{3}\right) \times 60 = 45.$

266. b Value added per employee $= \frac{\text{Value added}}{\text{Employment}}$.

267. b Compound productivity $= \frac{\text{Gross output}}{\text{Fixed capital}}$.

Hence, compound productivity for various sectors is:

Public sector = 0.6, Central government = 0.725,

States/Local = 0.47, Central and States or Local = 1.07, Joint sector = 1.23 and wholly private = 1.36.

Hence, the order should be: Wholly private, Joint, Central and State or Local Government, Central Government, Public sector and State or Local government.

268. c Calculate the ratios: Value added/employment and value added/fixed capital for the sectors mentioned in the choices. The respective values are:

Wholly private 0.9 and 1.25; Joint sector 1.59 and 1.19; Central/State/Local 1.8, 1.28; others 0.92 and 0.75.

269. d The number of factories in joint sector is 1.8% = 2700, thus, the number of factories in Central Government = 1% of (2700 x 100/1.8) = 1500.

Value added by Central Government = 14.1% of 1,40,000 crore = 19,740.

Hence, required average value added

$= \frac{19740}{1500}$ = Rs. 13.1 crore.

270. a Percentage change in FEI in 1998 relative to 1997 for various countries is:

For India $= \frac{(0.72-1.71)}{1.71} = -57.89\ \%$

For China $= \frac{(4.8 - 5.96)}{4.8} = -19.46\%$

For Malaysia $= \frac{(9.92-10.67)}{10.67} = -7.02\%$

For Thailand $= \frac{(5.282-5.09)}{5.2} = 14.34\%$

Hence, highest change (absolute) is for India.

271. d Since the absolute values are not given, it cannot be calculated.

272. d Assume GDP of India for 1997 to be x.

For 1998, India's FEI $= \frac{0.72 \times 102x}{100} = 0.7344x$

And foreign equity inflows for 1997 = 1.71x

For China, assume GDP as y. Then, FEI in 1998

$= \frac{107y}{100} \times 4.8 = 5.136y$. And FEI in 1997 = 5.96y.

For South Korea, let GDP be z.

FEI in 1998 $= \frac{95z}{100} \times 2.5 = 2.375z$ and FEI in 1997 = 2.16z.

FEI of India and China were lower in 1998 than in 1997, while that of South Korea was higher in 1998 than in 1997.

273. c Let x be the foreign equity inflow of India. Thus, China's foreign equity inflow is 10x.

Now in 1998, FEI in India was 0.72. Therefore,

$$0.72 = \frac{x}{\text{GDP of India}}$$

Similarly, FEI in China in 1998 was 4.8, therefore, $4.8 = \frac{10x}{\text{GDP of China}}$

Hence, (GDP of China/GDP of India) = (10 × 0.72)/ 4.8 = 1.5.Thus, China's GDP is 50% higher than that of India.

274. a As from the table, the deficit intensity from 1993-94 to 1997-98 are 5.1, 6.3, 7.6, 8 and 5.

Therefore, the highest growth rate is $\frac{7.6 - 6.3}{6.3}$ = 23.5%, which is in 1994-95.

275. d The highest growth rate = $\frac{7.6 - 6.3}{6.3} \times 100 = 23.5\%$

276. b From the tables given,

Import of raw material = 10.1 × Sales (S) import of capital goods = 17.6 × Gross fixed assets (GFA)

Given imports = Raw materials + Capital goods

So import = 10.1 S + 17.6 GFA So imports = 14.2 S

Hence, 14.2 S = 10.1 S + 17.6 GFA

Hence, $\frac{S}{GFA} = \frac{17.6}{4.1} = 4.3$

277. d As the sales in different years are not given, the absolute value of exports and imports cannot be compared across years.

Deficit Intensity increases every year between 1993-94 and 1996-97.

278. c It is clear from the given graph.

279. d Let us first find out the growth in 1990 of the all four sectors. So manufacturing 9% of 20 = 1.8. Hence, 20 + 1.8

= 21.8. Similarly, for mining and quarrying it is 15.6.

For electrical, it is 10.85 and for chemical it is 16.1. Now in 1991 there is 1% negative growth in manufacturing. So 1% of 21.8 becomes 0.218. Thus, 21.8 – 0.218 = 21.582. Similarly, for mining and quarrying it is 15.44. For electrical it is 11.88 and for chemical it is 16.21.

Now we add the figures for 1991 of all the sectors which comes to 21.582 + 15.75 + 11.88 + 16.21 = 65.42. Now, 65.42 – 64.35 = 1.07, which comes to approximately 1.5% growth rate.

280. a It is clear from the graph that manufacturing is always growing in 1992 – 98. Hence, it will reach highest level in 1998.

281. b In 1990, there is 4% growth.

Hence, 4% of 15 = 0.6. So weightage in 1990 becomes 15.6.

Similarly, in 1991 it becomes 15.44, in 1992 it is 15.6, in 1993 it is 14.97, in 1994 it is 16.16.

Hence, it can be seen that the lowest level of production was in 1993.

282. a Find out the weightage for all the sectors for 1994. For manufacturing it is 25.54, for mining and quarrying it is 16, for electrical it comes out to be 14.5 and for chemical it is 19.5. The total comes to approximately 77. In 1989, it was 60. Hence, 77 – 60 = 17 which is approximately 25% increase.

283. b Since the index of total industrial production in 1994 is 50% more than in 1989, it becomes 150.

Now, total weightage for manufacturing, mining and quarrying, electrical and chemical in 1994 is approximately 77. So 150 – 77 = 73.

In 1989, it was 100 – 60 = 40.

So 73 – 40 = 33, which is approximately 87.5%.

284. c Cost in shift operation = 800 + 1200 = Rs. 2,000

Variable cost for 40 units = Rs. 3,600

Approximate average unit cost for July

$$= \frac{3600 + 2000}{40} = \text{Rs. } 140.$$

285. b The only change for change of production from 40 to 41 is the variable cost which is Rs. (3730 – 3600) = Rs. 130.

286. a As the graph is an increasing function graph, MC always increases with increase in the number of units produced.

287. c Total sales revenue = Rs. (150 × 40) = Rs. 6,000

Total production cost = Rs. (3600 + 2000) = Rs. 5600.

So profit = Rs. 400.

288. a Profit is the highest when there is no second shift.

289. a For production level in the range of 0 – 30 units, AC is always greater than Rs. 100 whereas MC is always less than or equal to Rs. 100.

290. d Count only those lays for which any size of yellow coloured fabric is produced.

They are lay number

1, 3, 4, 6, 7, 8, 9, 11, 12, 15, 21, 24, 25, 27

Hence, 14 is the answer.

291. b Count those lays for which extra-extra large fabric is produced of any colours, i.e. count the lay numbers for which at least one of XXL from 3 colours is non-zero.

They are lay number 7, 8, 9, 10, 11, 12, 13, 14, 15, 21, 22, 23, 24, 25, 26, 27 .

Hence, 16 is the answer.

292. d Again count lay number for which at least one of the XXL from yellow and white are non-zero.

Lay number 7, 8, 9, 10, 11, 12, 13, 14, 15, 21, 23, 24, 25, 26, 27.

Hence, 15 is the answer.

293. b The varieties for which there is surplus gives the answer. There are 4 such varieties.

294. b Put a decimal after the first two digit in the passengers column and it wil give the figure in millions.

In that case we have only 5 international airports of type A having more than 40 million passengers.

They are in serial number 1, 2, 3, 5, 9.

Rest all 'A' type airports are below 40 million.

295. a There are only six airports of USA among the top 10 busiest airports. They are in serial number 1, 2, 3, 5, 9, 10.

Hence, $\frac{6}{10} \times 100 = 60\%$.

296. c We have to calculate the percentage of passengers handled at Heathrow Airport.

Now total number of passengers in the 5 busiest airport is approximately

(77 + 72 + 63 + 62 + 60) million = 334 million

At Heathrow it is 62 million.

The approximate percentage is $\frac{60}{300} \times 100 \cong 20\%$

297. b All the international airports handle more than 30 million passengers. Among these only 6 airports are not located in USA. Hence, (b) is the correct option.

298. a Man-hours spent in coding is 420 + 100 = 520.

Now going by options, we see (a) is the only option.

299. c Total work is approximately

(100 + 80) + (420 + 100) + (280 + 140) = 1120

On-site work = 80 + 100 + 140 = 320

Percentage of total work carried out on-site is $\frac{320}{1120} \times 100$ = 30% approximately.

300. c From figure the total effort in man-hours spent on-site is 320.

It is nearest to actual man-hours of offshore testing which is 280 (approximately.)

301. a Total man-hours

= (100 + 80) + (420 + 100) + (280 + 140) = 1120.

Total working hours = 100

Total man working = $\frac{1120}{100} = 11.2$ or 11.

For 50 hr the total man-hours is 50 × 11 = 550, which is near to coding (420 + 100)

Hence, (a) is the correct option.

302. b Initial offshore testing man-hours = 280.

Initial onshore testing man-hours = 140.

Final offshore testing man-hours

= 280 – 50% of 280 = 140

Final onshore testing man-hours = 140 + 140 = 280.

Hence, the proportion of testing offshore

= $\frac{140}{(140+280)} = 30\%$ approximately.

303. a

	Design	Coding	Testing
Initially	80	100	140
Finally	$80 + \frac{100}{2} = 130$	$100 + \frac{420}{2} = 310$	$140 + \frac{294}{2} = 287$

304. b On interchanging the effort allocation between operations B and C, then C and D, and then D and E we find that B takes the E's position.

Looking at the effort in B and then ranking in ascending order we find that the company 3 ranks third.

305. a Total effort for operation B through F is 81.5%.

Even distribution will give effort allocation in each operation = $\frac{81.5}{5} = 16.3\%$

$\therefore$ Change in E = 28.6 – 16.3 = 12.3%

306. d Since we are given about company 1, 4, 5 in options so we will look for changes in these companies only.

Allocation of effort in B, C, D in companies 1 = 43.1

Remaining operations gets $\frac{43.1}{3} = 14.4\%$ each.

Allocation of effort in B, C, D operations of company 4 = 29.7

Remaining operation is allocated extra $\frac{29.7}{3} = 9.9\%$ each.

Allocation of effort in B, C, D operation of company 5 = 36.8

Remaining operation is allocated $\frac{36.8}{3} = 12.3\%$ each.

We see that operation E in company 5 will then show the maximum.

307. b Cost in rupees of oil moved by rail and road is 18% of 30 million = 5.4 million.

Volume of oil transported by rail and road

= 31% of 12 million tonnes

= 3.72 million tonnes.

Cost in rupees per tonnes = $\frac{5.4}{3.72} = 1.5$ approximately.

308. a From the chart, we can make out the least among road, rail, pipeline, ship by looking at the ratio of cost to volume.

Road = $\frac{6}{22}$

Rail = $\frac{12}{9}$

Pipeline = $\frac{65}{49}$

Ship = $\frac{10}{9}$

Since ratio of cost to volume for road is the lowest, it is the cheapest.

309. c Ship, air and road.

Like the previous answer again look at ratio of

$$\frac{10}{9}, \frac{7}{11}, \frac{6}{22}$$

So $\frac{10}{9} > \frac{7}{11} > \frac{6}{22}$

Hence, P > Q > R.

310. b Total five lie between 10 E and 40 E.

Austria,	Bulgaria,	Libya,	Poland,	Zambia
N	N	N	N	S

$\frac{1}{5} = 20\%$

311. d Number of cities starting with consonant and in the northern hemisphere = 10.

Number of countries starting with consonant and in the east of the meridien = 13.

Hence, option (d) is the correct choice. The difference is 3.

312. a Three countries starting with vowels and in southern hemisphere — Argentina. Australia and Ecuador and two countries with capitals beginning with vowels — Canada and Ghana.

313. c Emp. numbers 51, 58, 64, 72, 73 earn more than 50 per day in complex operations.

Total = 5

314. d 80% attendance = 80% of 25 = 20 days

Emp. numbers 47, 51, 72, 73, 74, 79, 80.

Thus, total = 7

315. a

Emp. No.	Earnings E (medium)	No. of days D (medium)	E/D
2001151	159.64	13.33	11.97
2001158	109.72	9.61	11.41
2001164	735.22	12.07	60.91
2001171	6.10	4.25	-
2001172	117.46	8.50	13.81
2001179	776.19	19.00	40.85
2001180	1262.79	19.00	66.46

Hence, Emp. number 2001180 earns the maximum earnings per day.

316. c Emp. numbers 51, 58, 64, 71, 72 satisfy the condition.

[For emp. 64, you see 12 is not the double of 5. And 735 is not even double of 402.

Hence, $\frac{402}{5} > \frac{735}{12}$.

Note: Emp. numbers 48, 49, 50 are not eligible for earnings. Hence, they are not counted.

317. c Total revenue of 1999 = 3374

5% of 3374 = $3374 \times \frac{5}{100} = 168.7$

For 1999, revenue for Spain is 55, Rest of Latin America is 115, North Sea is 140, Rest of the world is 91.

So total four operations of the company accounted for less than 5% of the total revenue earned in the year 1999.

318. b **The language in the question is ambiguous.**

Taking the question to be more than 200% growth in revenue, the revenue in 2000 will be more than 3 times that in 1999. Hence, (b) is the answer.

Taking the revenue in 2000 to be more than 200% of that in 1999, the revenue in 2000 should be more than twice of that in 1999. Then there will be 4 operations.

319. b Four operations, as given below:

(1) North Africa and Middle-East

(2) Argentina

(3) Rest of Latin America

(4) Far East

have registered yearly increase in income before taxes and charges from 1998 to 2000.

320. b Percentage increase in net income before tax and charges for total world (1998-99)

$$= \frac{1375 - 248}{248} \times 100 = 454.4\%$$

Spain is making loss.

Percentage increase for North Africa and Middle-East

$$\frac{341 - 111}{111} \times 100 = 207.2\%$$

Percentage increase for Argentina $= \frac{838 - 94}{94} \times 100$

$= 791.5\%$

From the table one can directly say that there is no operation other than Argentina, whose percentage increase in net income before taxes and charges is higher than the average (world).

321. b Statement 1 is obviously wrong.

(b) $\frac{54}{65} > \frac{20}{52}$. Hence, (b) is correct.

(c) $\frac{500}{1168} > \frac{61}{187}$. Hence, (c) is wrong.

322. b Profitability of North Africa and Middle-East in 2000

$$= \frac{356}{530} = 0.67$$

Profitability of Spain in 2000 = $\frac{225}{43} = 5.23$

Profitability of Rest of Latin America in 2000 = $\frac{169}{252}$, i.e. < 1.

Profitability of Far East in 2000 = $\frac{189}{311} = < 1$

323. d Except Rest of Latin America and Rest of the World, all the operations are greater than 2.

324. d Options (a), (b) and (c), are ruled out. So the correct option is (d).

325. b It can be easily observed from the two charts that Switzerland's ratio of chart 1 to chart 2 is $\frac{20}{11}$ has the highest price per unit kilogram for its supply. Finding the ratio of the value and quantity is enough to reach the solution.

326. b Total value of distribution to Turkey is 16% of 5760 million Euro.

Total quantity of distribution to Turkey is 15% of 1.055 million tonnes.

So the average price in Euro per kilogram for Turkey is

$$\frac{\left(5760 \times \frac{16}{100}\right)}{\left(1055 \times \frac{15}{100}\right)} \simeq 5.6$$

For questions 327 to 332:

Position of States (Rank)	Year					
	96-97	97-98	98-99	99-00	00-01	
1	MA	MA	MA	MA	MA	
2	TN	TN	TN	TN	TN	
3	GU	AP	AP	AP	AP	
4	AP	GU	GU	GU	UP	} changed twice
5	KA	UP	UP	UP	GU	} changed twice
6	UP	KA	KA	KA	KA	
7	WB	WB	WB	WB	WB	

327. b From above table, we can conclude that option (b) is correct.

328. b On referring to the table, we can see that UP is the state which changed its relative ranking most number of times.

329. d We can say directly on observing the graph that the sales tax revenue collections for AP has more than doubled from 1997 to 2001.

330. c Growth rate of tax revenue can be calculated as:

(Sales tax revenue of correct year – Sales tax revenue of previous year)

For year 1997-98 $\frac{7826 - 7290}{7826} = 0.068$

For year 1998-99 $\frac{8067 - 7826}{7826} = 0.030$

For year 1999-2000 $\frac{10284 - 8067}{8067} = 0.274$

For year 2000-01 $\frac{12034 - 10284}{10284} = 0.170$

331. a For increase by the same amount for 2 successive years, eliminate the options by subtracting only the last digit.

For Karnataka, increase in 2000-01 is 5413 – 4839 = 574 and increase in 1999-2000 is 4839 – 4265 = 574.

Hence, (a) is the correct option.

332. c On referring to the table, we can see that Tamil Nadu has been maintaining a constant rank over the years in terms of its contribution to total tax collections.

333. a FRG + CZE = 43.01 and US Total = 42.83

Hence, difference in time = 43.01 – 42.83 = 0.18

334. b The first two rankers of final score are 8905 and 8897.

The third ranker is carrying a score of 8880. So he needs to score 8881 to get a bronze, whereas his sum is 582 + 3003 = 3585.

Least score required = 8881 – 3585 = 5296

335. d Let the positive weights given to a competitor in High Jump, Pole Vault and Long Jump be x, y and z respectively. Therefore, x + y + z = Score-2

In long jump event, Michael Smith must have out-jumped all those competitors (excluding Daley Thompson) who had scored more than or equal to Michael Smith in each of High Jump and Pole Vault but with consolidated Score-2 of less than the consolidated Score-2 of Michael Smith.

The four competitors whom Michael Smith must have out-jumped in the long jump event are Torsten Voss, Jurgen Hingsen, Grigory Degtyarov and Steve Fritz.

336. b Here you need to compare the ratio as which is the highest out of $\frac{189}{561}, \frac{209}{587}$ and rest of the options have equal value.

Now we can see that $\frac{209}{587}$ is greater than $\frac{189}{561}$, so 1997 has the highest ratio.

337. a Population in 1995

$$= \frac{421-207}{487} \times 1000 \text{ million} \approx 440 \text{ million}$$

Population in 1996

$$= \frac{561-189}{464} \times 1000 \text{ million} \approx 802 \text{ million}$$

Population in 1997

$$= \frac{587-209}{510} \times 1000 \text{ million} \approx 740 \text{ million}$$

Population in 1999

$$= \frac{660-220}{566} \times 1000 \text{ million} \approx 777 \text{ million}$$

Hence, Chaidesh had the lowest population in 1995.

338. a From 96 to 99, in each year the production has increased but the area has decreased. Therefore, the production in unit per area is highest in 1999.

339. c

	Cement	Limestone	Power	Wages
93 - 94	100	20	25	15
02 - 03	104	21	27	15.8

$$\text{So percentage profit} = \frac{104-(21+27+15.8)}{104} \times 100$$

$$= \frac{40.2}{104} \times 100 = 38.65\%$$

340. b

	Steel	Power	Wages	Iron Ore
93 – 94	100	30	10	25
02 – 03	105.5	32.4	10.53	26.5

So percentage profit

$$= \frac{105.5-(32.4+10.53+26.5)}{105.5} \times 100 = 34.18\%$$

341. a You only need to see the particular row in the table for the given options and for Power, it experienced continuous rise.

342. d Again for timber, wages experienced declined only once for the given period.

343. b There are 32 nations in all the four lists which have lower birth rates than Philippines. So they are ranked higher than it. Now, three nations namely Philippines, Thailand and Colombia have identical birth rates and death rates (34 and 10 respectively). Hence, they are ranked 33rd in the consolidated list.

344. a The rank of Spain is 17th overall, tied alongwith Yugoslavia. So the next country will be ranked 19th in the list. Taiwan is ranked 28th in the list. Hence, there will be (28 – 19) = 9 countries between Taiwan and Spain.

345. d In the consolidated list, there are 36 countries whose birth rate doesn't exceed 35. Now looking at the countries with birth rate of 36, we see that on the basis of lower death rates, Venezuela is placed at 37th position.

346. a There are 9 countries in Asia that are ranked lower than every country of South America, namely Iran, Vietnam, Korea(DPRK), Pakistan, Nepal, Bangladesh, Syria, Iraq and Afghanistan. Out of these nations, only Afghanistan is ranked below all the countries from Africa. Remaining 8 countries satisfy the given condition.

347. c March rainfall is lower than September rainfall in every location.

348. b Peak rainfall occurs in April only in locations 6 and 7.

For questions 349 to 351:

Based on observation only.

349. c By observation, 4 commodities namely Chillies, Onion, Egg and Dal showed a net overall increase and the remaining two , namely Edible Oil and Rice showed a net overall decrease.

350. d Except Edible Oil, all the other five commodities experienced a price decline for two or more consecutive years.

351. d Egg and Onion shows a price rise immediately after a price decline only once in this period.

For questions 352 to 355:

Operating profit = Profitability × Operating Income

Operating profits in 2002-03 for:

$$A = \frac{8 \times 180}{100} = 14.4 \text{ crore; } B = \frac{2 \times 220}{100} = 14.4 \text{ crore;}$$

$$C = \frac{15 \times 200}{100} = 30 \text{ crore; } D = \frac{1 \times 290}{100} = 2.9 \text{ crore;}$$

$$E = \frac{17.5 \times 200}{100} = 35 \text{ crore; } F = \frac{9 \times 210}{100} = 18.9 \text{ crore}$$

Looking at the values, two companies B and D are excluded in the third graph.

352. d Companies A, C and E have profitability between 10% and 20% in F.Y. 2001-02. But the operating income of C in F.Y. 2002-03 is greater than 200 crore. Hence, option (d) is the correct option.

353. c E has the highest operating profit of Rs.35 crore in F.Y. 2002-03.

354. a Operating profit of B in F.Y. 2001-02

$$= \frac{(-4) \times 250}{100} = -10 \text{ crore}$$

and operating profit of D in F.Y. 2001-02

$$= \frac{(-2)\times 250}{100} = -5 \text{ crore}$$

Therefore, average operating profit for B and D in F.Y. 2001-02 = $\frac{(-5)+(-10)}{2}$ crore $= -7.5$ crore

355. Two companies C and E have profitability exceeding 10% in F.Y. 2002-03.

$\therefore$ Their average operating profit in F.Y. 2002-03

$$= \frac{30+35}{2} \text{ crore} = 32.5 \text{ crore.}$$

356. b Increase of HP is from 884 to 970, i.e. 86

Increase of Kerala is from 1004 to 1058, i.e. 54

Increase of Punjab is from 832 to 874, i.e. 42

Increase of Assam is 919 to 932, i.e. 13

Increase of J & K is 882 to 900, i.e. 18

Therefore, HP and Kerala are highest.

357. c Goa (1091 to 960) i.e. 131

Tamil Nadu (1044 to 986) i.e. 58

Bihar (1061 to 921) i.e. 140

Orissa (1037 to 972) i.e. 65

Therefore, Bihar should the sharpest decline over the period 1901 – 2001.

358. c Females outnumbering males means that the sex ratio is more than 1000.

Option (a), (b), and (d) are true.

359. d **Statement A:**

Success rate for males in 2003

$$= \frac{637}{60133}\times 100 \approx 1.06\%$$

Success rate for females in 2003

$$= \frac{399}{40763}\times 100 \approx 0.98\%$$

Hence, 'A' is false.

Statement B:

Success rate for females in 2002

$$= \frac{138}{15389}\times 100 \approx 0.89\%$$

Success rate for females in 2003

$$= \frac{399}{40763}\times 100 \approx 0.98\%.$$

Hence, 'B' is false.

360. d **Statement A:**

Females selected = $\frac{48}{19236}\times 100 \approx 0.25\%$

Males selected = $\frac{171}{61205}\times 100 \approx 0.28\%$

Hence, 'A' is false.

Statement B:

Success rate for Males = $\frac{17}{684}\times 100 = 25\%$

Success rate for Females = $\frac{48}{138}\times 100 \approx 34.8\%$

Hence, 'B' is false.

361. a **Statement A:**

Female absentees in 2002 (19236 – 15389) = 3847

$$= \frac{3847}{19236}\times 100 \approx 20\%$$

Female absentees in 2003 (45292 – 40763) = 4529

$$= \frac{4529}{45292}\times 100 \approx 10\%$$

Hence, 'A' is true.

Statement B:

Male absentees in 2003 (63298 – 60133) = 3165

$$= \frac{63298-60133}{63298}\times 100 \approx 5\%$$

Hence, 'B' is false.

362. b It is evident from the graph that Seeta's growth rate decreased from third month as this is the first time the slope has decreased.

363. a Geeta grew at the fastest rate in the first two months (the slope of the line in this period is steepest for Geeta).

364. a Geeta grew the lowest in the third month (during this period, the slope was least for Geeta).

365. d Seeta increased by 7 cm on 50 cm and Shyam by 7 cm on 53 cm. Hence, Shyam grew least.

366. d The possible combinations when the respondents are aged less than 40 years is minimum can be:

(i) No children – 1 male(aged 38) and atleast 1 female (aged 34)

(ii) 1 child – 1 male(aged 32) and atleast 1 female (aged 35)

(iii) 2 children – at least 1 male(aged 21) and at least 1 female (aged 37)

(iv) 3 children – 2 males(aged 32 and 33) and 1 female (aged 27)

i.e. there is at least 9 such respondents.

Required percentage = $\frac{9}{30}\times 100 = 30\%$.

367. c The possible combinations when the respondents are aged more than 35 years is maximum can be:

(i) No children – 1 male(aged 38) and atmost 4 females

(ii) 1 children – 0 male and at most 7 female

(iii) 2 children – at most 7 males and 3 females

(iv) 3 children – 0 male and 1 female(aged 40)

i.e. there can be at most 23 such respondents.

Required percentage = $\frac{23}{30} \times 100 = 76.67\%$

368. c The possible combinations when the respondents are aged between 35 and 40 years(both inclusive) is minimum can be:

(i) No children – 1 male(aged 38) and 0 female

(ii) 1 children – 0 male and at least 1 female (aged 35)

(iii) 2 children – 0 males and at least 1 female (aged 37)

(iv) 3 children – 0 male and 1 female (aged 40)

i.e. there can be at least 4 such respondents.

Required percentage = $\frac{4}{30} \times 100 = 13.33\%$.

369. c In case of Products, percentage of spam emails is increasing but at decreasing rate, from Sep 2002 to Dec 2002 products increased by $\frac{7-3}{3} \approx 133\%$ and in Mar 2003 about $\frac{7-4}{7} \approx 43\%$ and in Jun 2003 $\left(\frac{11-10}{10} \approx 10\%\right)$.

370. a Since percentage of spam is Dec 2002 is higher than June 2003, and the number of total e-mails received is higher, hence number received in Dec 2002 is higher.

371. d Cannot be determined as in Sept 2002 percentage is lower as compared to March 2003, however the total number of emails received in Sept 2003 is higher than that in March 2002. Thus, we cannot say anything.

372. b It happened only once i.e., on 17-Jul-02.

373. c From the table, we can see that for issue dated, 04 June-03, the 2nd round issue has a lower maturity and the competitive bids received are higher.

374. d On 07-Nov 02, the value of non-competitive bids in the 2nd round is greater than that of 1st round. So option (d) is not true.

375. b Here the scale of the profit axis is exactly 10% of the scale of turnover axis. Just draw a diagonal line from bottom left point to top right point. All companies lying above this line have profit in excess of 10% of turnover.

From the graph, there are 7 companies, has the profit 10% of turnover.

376. c From the graph, there are 2 steel companies with a turnover of more than 2000 and profit less than 300.

377. b From the graph, there are 5 companies.

378. d By looking up the table, in University of California - Berkeley median starting salary is $70,000 and annual tuition fee is $18,788.

379. b By looking up the table, the number of schools, uniformly better than Dartmouth College is 2, namely Stanford and New York University.

380. d 8 universities namely, Stanford, Harvard, Pennsylvania, Massachusetts, Chicago, Northwestern, Columbia and Duke university have single digit ranking on atleast 3 of the 4 parameters.

381. b Number of children with age $\leq$ 9 years = 45

Number of children with height $\leq$ 135 cm = 48

Therefore, the number of children of age 9 years or less whose height does not exceed 135 cm will be the common of the two (age $\leq$ 9 years and height $\leq$ 135 cm) = minimum(45, 48) = 45

382. a Number of children aged more than

10 years = 100 – 60 = 40

Number of children taller than

150 cm = 100 – 75 = 25

Number of children with weight more than

48 kg = 100 – 91 = 9

These 9 children are surely included in the 25 children taller than 150 cm and more than 10 years of age because of the assumption given. Thus, 25 – 9 = 16 children satisfy the given condition.

383. c Number of children older than 6 years but not exceeding 12 years = 77 – 22 = 55

Number of children with weights not exceeding 38 kg = 33

These 33 children includes the 22 children with age not exceeding 6 years. Therefore, the remaining (33 – 22) = 11 comes from the 55 children of ages older than 6 years but not exceeding 12 years.

Therefore, 55 – 11 = 44 children satisfy the given condition.

384. d Profitability is defined as percentage of sales. Approximately, Firm A has 20% profit, B has 16.66%, C has 20% and D has approximately 25% profit.

385. a $\frac{24568 + 25468}{89570} \times 100 \approx 55\%$

386.c Average incomes of Ahuja family

$$= \frac{3200+3000+2800}{3} = \frac{9000}{3} = 3000;$$

Bose family $= \frac{2300+2100+2800}{3}$

$$= \frac{7200}{3} = 2400;$$

Coomar family $= \frac{1200+2200+1600}{3}$

$$= \frac{5000}{3} \approx 1667$$

and Dubey family $= \frac{1200+3200}{2} = \frac{4400}{2} = 2200.$

Hence, Coomar family has the lowest average income.

387.d The average expenditures (approximately) for the families:

Ahuja $= \frac{700+1700+2700}{3} \approx 1733;$

Bose $= \frac{800+1750+2300}{3} \approx 1617;$

Coomar $= \frac{500+1100+1900}{3} \approx 1167$ and

Dubey $= \frac{1200+2800}{2} = 2000.$

Hence, Dubey family has the highest average expenditure.

388. d The average savings (approximately) for the families:

Ahuja $= \frac{2500+1300+100}{3} = 1300;$

Bose $= \frac{1500+350+500}{3} \approx 783;$

Coomar $= \frac{700+1100+300}{3} = 700$ and

Dubey $= \frac{0+400}{2} = 200.$

Hence, Dubey family has the lowest average savings.

389. a The savings of a person is maximum if he/she has high income but less expenditure. From the graph, a member of Ahuja family has Rs.3200 as income and Rs.700 as expenditure. Hence, he/she will have the maximum savings among all.

390. b Number of Naya mixer-grinders disposed off in 1999 = 20% of 30 = 6

So the number of Naya mixer-grinders in 1999, i.e. 124 is inclusive of those mixer grinders produced in 1997 and 1998 and still in operation. The numbers are (30 – 6) = 24 and (80 – 30) = 50 respectively.

Therefore, number of new Naya mixer-grinders purchased in 1999 = 124 – (50 + 24) = 50.

391. b Number of Naya mixer-grinders disposed off in 1999 = 20% of 30 = 6

Number of Naya mixer-grinders disposed off in 2000 = 20% of (80 – 30) = 10

Therefore, total number of Naya mixer-grinders disposed by end of 2000 = 6 + 10 = 16.

392. d Sine information regarding the number of Purana mixer-grinders for the years prior to 1995 is not known, it cannot be ascertained as to how many of them were disposed off in 2000.

393. a It is given that 10 Purana mixer-grinders were disposed off as junk in 1997. So the number of mixer-grinders in operation in 1997 must have been 162 – 10 = 152. But it is given to be 182.

∴ Number of newly purchased Purana mixer-grinder in 1997 = 182 – 152 = 30

20% of this, i.e. 6 were disposed off in 1999. So the number of mixer-grinders in operation in 1999 must have been 222 – 6 = 216. But it is given to be 236.

∴ Number of newly purchased Purana mixer-grinder in 1999 = 236 – 216 = 20.

For questions 394 to 397:

Go through the following table.

	Pakistan	South Africa	Australia
K	28	51	< 48
R	< 22	49	55
S	< 22	75	50
V	130	< 49	< 48
Y	40	< 49	87
Top 3 batsmen	198	175	192
India Total	220	250	240

394. c **395.** a **396.** b **397.** b

For questions 398 to 401:

In any department in any given year, the average year ranges between 42-53 years.

(i) When a 25 year old will join, the average age will dip by a minimum of 5 years.

(ii) When a 60 year old will retire, the dip will be less compared to (i).

398. c In the bar graph, one dip corresponds to the new 25 year old joinee. However, two dips in the trend implies joining of a 25 year old and the retirement of a 60 year old employee. This trait is observed only in Finance department. Hence, the faculty member who retired belonged to Finance.

399. d From the graph of Marketing, it is clear that the new faculty joined in 2001.

On April 1, 2000, completed age of Professor Naresh and Devesh were 52 years and 49 years, in no particular order.

$\therefore$ Age of the third Professor on April 1, 2000

$= 49.33 \times 3 - (52 + 49) = 47$ years

Hence, his age on April 1, 2005 will be 52 years.

400. c As the dip will be less in case a faculty retired compared to that when a new faculty joined in, so the new faculty member joined the Finance area in 2002.

401. c For the OM area, the only dip comes in the year 2001. So the new 25 year old faculty joined in 2001. Hence, on April 1, 2003, his age will be 27 years old.

402. a **State Productivity (Tons per hectare)**

Haryana $\frac{19.2}{3.2} = 6$

Punjab $\frac{24}{4} = 6$

Andhra Pradesh $\frac{112}{22.4} = 5$

Uttar Pradesh $\frac{67.2}{16.8} = 4$

Hence, Haryana and Punjab have the highest productivity.

403. b Gujarat $\rightarrow \frac{24}{51} = 0.47$

Only per capita production of rice for Haryana, Punjab, Maharashtra and Andhra Pradesh are greater than 0.47.

404. d As seen from the table

Haryana, Gujarat, Punjab, MP, Tamil Nadu, Maharashtra, UP and AP are intensive rice producing states.

405. a The minimum return will be gained if the extraordinary performing stocks (double & 1.5 growth) are the ones whose expected returns are lowest (i.e. 10% & 20%). Taking the minimum value of the expected returns as 10. We have to see which of the two values of 10 and 20 multiplied by 2 and 1.5 and vice versa yields the minimum value.

Hence comparing the minimum value between

$20 \times 2 + 10 \times 1.5$ and $20 \times 1.5 + 10 \times 2$, the 2nd one is minimum. Hence the minimum average return is

$$\frac{20 \times 1.5 + 10 \times 2 + 30 + 40}{4} = 30\%$$

406. b If the average return is 35%, then the total return is

$35 \times 4 = $ Rs.140.

The only possible arrangement of 140 is

$40 \times 1.5 + 30 + 20 \times 2 + 10.$

$\therefore$ A = 20 × 2 (Cement or IT)

B = 10

C = 30

D = 40 (1.5) (Steel or Auto)

From the data given in the question, we see that A has to be Cement or IT.

D is Steel or Auto.

Hence, statements (II) and (III) are correct.

407. c Total return is $38.75 \times 4 = $ Rs.155

The possible arrangement is

$20 + 10 + 30 \times 1.5 + 40 \times 2$

Therefore, A = 20, B = 10, C = 30 (Steel or Auto), D = 40 (Cement or IT)

Hence, statements (I) and (IV) are correct.

Hence, (c) is the correct option.

408. b Given Company C is either Cement or IT industry

C's Return is $30 \times 2 = 60\%$

Among the other values we see that the possible arrangements can be

$10 \times 1.5 + 20 + 40$, $10 + 20 \times 1.5 + 40$, $40 + 20 + 40 \times 1.5$

The average returns will be in each case

$$\frac{10 \times 1.5 + 20 + 40 + 60}{4} = 33.75\%,$$

$$\frac{10 + 20 \times 1.5 + 40 + 60}{4} = 35\%,$$

$$\frac{40 + 20 + 40 \times 1.5 + 60}{4} = 45\%.$$

Considering 33.75% as the valid value, then B belongs to the Auto industry.

Hence, (II) and (IV) are correct.

Hence, (b) is the correct option.

For questions 409 to 412:

L = London, Paris = P, New York= NY, Beijing = B

In round III, one of the two cities, either London or Paris will get 38 votes and the other 37. Further:

(1) The persons representing London, Paris, Beijing and New York can not vote as long as their own cities are in contention. In round I, New York gets eliminated and hence the representative from NY becomes eligible for voting in the II round hence increasing the total votes by 1. This means the total votes in the first round must be 83 – 1 = 82.

(2) After round II, the representative from Beijing votes in the III round. This should have increased the number of total votes by 1 and the total votes must have become 83 + 1 = 84.

We are given that the total votes in round III are 75 only. We conclude that 84 – 75 = 9 people who voted in round I and II have become ineligible for voting in round III.

(3) 9 people who have voted in round I and II become ineligible for voting in round III. The reason of their ineligibility is that till round I and II, they have already voted for two different cities which are not available for contention in round III. All of these 9 voters are those who voted for NY in round I and then voted for Beijing in round II.

(4) Beijing's vote in round II is 21. This includes 9 votes from people who voted for NY in the first round. So 21 – 9 = 12 people voted for Beijing in both round I and II.

(5) We are given that 75% of the people who voted for Beijing in round I, voted again for Beijing in round II as well. So, 16 people must have voted for Beijing in round I.

(6) In round I we have:

$$82 = L + P + B + NY$$

Or

$$82 = 30 + P + 16 + 12$$

Giving P = 24

(7) In round II, we have:

$$83 = L + 32 + 21, \text{ giving } L = 30$$

(8) NY had 12 votes in round I. 9 of these votes went to B(see point 2 , again). The rest 3 went to P.

(9) 16 votes for B in round I. 12 of them still vote for B. The rest 4 voted for either L or P. L has the same number of votes in both the rounds I and II. This means in round II, these 4 votes must have gone to Paris only.

(10) The representative from NY did not vote in round I but has voted in round II. As L has the same people voting for it (30 votes in both the rounds I and II) and we know the exact break up of B in II. This NY-representative vote must go to Paris only. Further, in order to avoid ineligibility, this NY rep must vote for Paris only in round III also.

(11) Paris (in round II) break up is:

32 = 24 (from round I, who voted for Paris)

+ 4 (out of the 16, who voted for Beijing in round I)

+ 3(out of 12, who voted for NY in round I)

+ 1 (NY -Rep)

(12) Beijing gets eliminated in round II. So the rep of Beijing can vote in round III.

(13) 12 People (out of 21) who voted for Beijing in round II are still eligible for vote in round III.

(14) 50% of people who voted for Beijing in I (i.e. 8 People) voted for Paris in round III. These 8 People include 4 of those who voted for Paris in round II also. Therefore 4(out of 12 who voted for Beijing in round II and are still eligible for vote in round III) people have voted for Paris in round III.

(15) This implies that the rest 8(out of 12 who voted for Beijing in round II and are still eligible for vote in round III) can vote for London only. This makes London's vote = 30+ 8 or 38 in round III. Which implies that Paris got 37 votes.

(16) The Beijing Rep who is eligible to vote in round III must have voted for Paris only.

The following table sums up the Vote Pattern:

Round	Total Votes	London (L)	Paris(P)	Beijing (B)	New York (NY)
I	82	**30**	24	16	**12**
II	**83**	30	**32** = (24 + 4 + 3 + 1 of NY-rep)	**21** (12 + 9)	X
III	**75**	38 = (30 + 8)	37= (32 + 4 + 1 of B-rep)	X	X

(The data shown in **Bold** was already provided in the problem. The other data is deduced from the solution.)

409. d Required percentage

$$= \frac{9}{12} \times 100 = 75\%$$

410. d As seen from the table, Paris got 24 votes.

411. d Required percentage

$$= \frac{8}{12} \times 100 = 66.67\%$$

412. a Based on the table, IOC members from New York must have voted for Paris in Round II.

For questions 413 to 417:

413. c Let Dipan get x marks in paper II.

Dipan's average in PCB group = 98

Maths group = 95

S.S. group = 95.5

Vernacular group = 95

English group = $\left(\frac{96 + x}{2}\right)$

Sum of all = 96 × 5

So $95.5 + 96 \times 3 + 48 + \frac{x}{2} = 96 \times 5$

$$\Rightarrow \frac{x}{2} = 96 \times 2 - 95.5 - 48$$

$$x = 2(96.5 - 48) = 2 \times 48.5 = 97$$

So (c) is the correct option.

414. a The only boy getting 95 in atleast one of the subjects of the group among all the groups is Dipan.

So (a) is the correct option.

415. a A group score of 100 in Social Science would have increased the scores as follows:

	Score Increase	Group Score	Final Score Increase	Final group Score
Pritam	22	11	$\frac{11}{5} = 2.2$	96.1
Joseph	9	4.5	$\frac{4.5}{5} = .9$	95.9
Tirna	21	10.5	$\frac{10.5}{5} = 2.1$	95.8
Agni	9	4.5	$\frac{4.5}{5} = .9$	95.2

So the order is Pritam > Joseph > Trina > Agni.

So option (a) is the correct choice.

416. d The student having atleast 95 in every group is Dipan, so the answer is Dipan, option (d).

417. e Let us increase the score in one of the subjects of the following candidates

	Least Scores	Contribution in net Score	Final Score
Ram	94 in group of 2	3 in 5 groups	96.1 + .6 = 96.7
Agni	82 in group of 2	9 in 5 groups	94.3 + 1.8 = 96.1
Pritam	83 in group of 2	8.5 in 5 groups	93.9 + 1.7 = 95.6
Ayesha	93 in group of 2	3.5 in 5 groups	96.2 + .7 = 96.9
Dipan	95 in group of 1	5 in 5 groups	96 + 1 = 97.0

So, Dipan will end with a highest total.

So the answer is option (e).

For questions 418 to 422:

The MCS share price at the beginning of first day is Rs.100 and at the close of day 5 is Rs.110.

The following cases of the closing prices can be derived.

At the end of	Day 1	Day 2	Day 3	Day 4	Day 5
1	90	80	90	100	110
2	90	100	90	100	110
3	90	100	110	120	110
4	90	100	110	100	110
5	110	100	90	100	110
6	110	100	110	100	110
7	110	120	110	100	110
8	110	120	110	120	110
9	110	120	130	120	110
10	110	120	110	100	110

418. c As Chetan sold 10 shares on three consecutive days, therefore, of the five days, there must be an increase for three of the five days and a decrease for the remaining two days. It is given that Michael sold 10 shares only once.

Hence, the price is more than 110 for only one day and on all the remaining days, it cannot exceed 110. The only satisfying case is **(3)**.

Hence, the price at the end of Day 3 is Rs.110.

419. b The satisfying cases are **(1), (2), (4), (5), (6).**

Hence, the price at the end of Day 4 is Rs.100.

420. a Let Chetan and Michael start with x number of shares initially.

From case **(1)**, we get that the number of shares with Michael = x + 10 and number of shares with Chetan = x + 10 + 10 – 10 – 10 – 10 = x – 10.

So Michael has 20 more shares than Chetan. This is the only satisfying case.

Hence, the share price at the end of Day 3 is Rs.90.

421. e Consider cases **(3) and (7).** Only these two satisfies the condition that Michael had Rs.100 less than Chetan at the end of day 5.

For case **(3),**

Number of shares with Chetan

= x + 10 – 10 – 10 – 10 + 10 = x – 10

And with Michael = x – 10

For case **(7),**

Number of shares with Chetan

= x – 10 – 10 + 10 + 10 – 10 = x – 10

And with Michael = x – 10

In either case, number of shares with Michael and Chetan are the same.

422. d To maximise the amount gathered by both of them, we need to look into those cases wherein we have maximum number of 110 excess figures. It is only then that Michael and Chetan both will make money. So we check for case **(9)**.

For case **(9)**,

Extra cash with Chetan by the end of day 5

= 1100 + 1200 + 1300 – 1200 – 1100

= Rs.1300

And that with Michael

= 1200 + 1300 + 1200 = Rs.3700

Total extra cash with both of them

= 1300 + 3700 = Rs.5000

For questions 423 to 426:

Looking at the values in the table one can easily conclude that the costs which are directly proportional to the change in volume of proportion are 'Material', 'Labour' and 'Operating cost of machines'. Rest of the costs are all fixed costs. If 'x' is the number of units produced in 2007, then the total cost of production would be

C = 9600 (Fixed cost) + 100x (Variable cost),

Variable cost = 100x because as the number of units for 2006 is 1200 and variable cost for that is 120000 i.e. 100 times the number of units.

423. b Total cost = 9600 + 100 × 1400 = 149600

$$\text{Cost per unit} = \frac{149600}{1400} = 107\ (\text{approx.})$$

424. c To avoid any loss the total selling price should be equal to the total cost price. If 'x' units are produced and selling price of each unit is 125 Rs.

Therefore, $125x = 9600 + 100x$

$$25x = 9600$$

$$\Rightarrow x = 384$$

Hence, 384 units should be produced.

425. e Here, fixed cost is Rs.9600 and the variable cost is Rs.100x, where x is number of units produced. Hence, profit is maximum if x is maximum. Therefore, 2000 units will give maximum profit.

426. a If the company sells a maximum of 1400 units, the selling price is fixed at Rs. 125 per unit. If more than 1400 units are sold, the selling price is reduced to Rs. 120 per unit. The company cannot sell more than 1700 units.

To earn maximum profit at a unit selling price of Rs. 125, the company must sell 1400 units. The maximum profit earned, denoted by P_0, is calculated as below:

$$\text{Profit} = (\text{Selling Price}) - (\text{Cost Price})$$

$$P_0 = 125 \times 1400 - (9600 + 100 \times 1400)$$

$$= \text{Rs. } 25400$$

Now if the company sells an x number of units (x > 1400) then the profit earned will be:

$$P_x = 120 \times x - (9600 + 100 \times x)$$

$$= 20 \times x - 9600$$

The minimum value of x for which P_x will be more than P_0 must satisfy the following inequality:

$$20 \times x - 9600 > 25400$$

$$\Rightarrow x > 1750$$

As only a maximum of 1700 units can be sold, P_x will never be more than P_0. Hence the maximum profit that can be earned is Rs. 25400 only.

Hence (a) is correct.

For questions 427 to 430:

From the given information the following table can be formed:

	M	F	V	NV	Total
Class 12	48	32	32	48	**80**
Class 11	44	36	40	40	**80**
Secondary Section	288	352	352	288	**640**
Total	**380**	**420**	**424**		**800**

427. b From the above table

Percentage of male students in the secondary section = $\frac{288}{640} \times 100 = 45\%$

428. e From the above table

Male vegetarians $= \frac{25}{100} \times 32 = 8$

Female vegetarians = 32 – 8 = 24

Male non-vegetarians = 48 – 8 = 40

So, their difference is 40 – 24 = 16.

429. a Percentage of vegetarian students in Class 12

$$= \frac{32}{80} \times 100 = 40\%$$

430.* From the main table

	M	F	V	Male Veg	Female Veg	Total
Class 12	48	32	32			80
Class 11	44	36	40			80
Secondary Section	288	352	352	320	320	640
Total	380	420	424			800

***This question is wrong** because the number of Male vegetarian cannot be greater than 288.

431. c The cost of angioplasty, hip replacement and a knee replacement (in US Dollars '000) in the given countries is as follows.

	India	Thailand	Malaysia	Singapore	USA
Angioplasty	11 + 5 = 16	13 + 5 = 18	11 + 6 = 17	13 + 4 = 17	57
Hip replacement	9 + 7 = 16	12 + 5 = 17	10 + 8 = 18	12 + 5 = 17	43
Knee replacement	8.5 + 9 = 17.5	10 + 6 = 16	8 + 4 = 12	13 + 4 = 17	40
Total cost	49.5	51	47	51	140

The cheapest is in Malysia.

432.a

	India	Thailand	Malaysia	Singapore
Knee replacement	8.5 + 9 = 17.5	10 + 6 = 16	8 + 4 = 12	13 + 4 = 17

Clearly, India has the highest cost for knee replacement surgery.

433. d In India, total cost in US$ = $3000 + 5000 + \frac{1500}{32.89}$ (transportation cost) = 8456.06

In Thailand, total cost in US$ = 4500 + 6000 = 10,500

Difference in amount is 10,500 – 8456.06 = US$ 2044 ≈ 67,500 Bahts

434. b In India, total cost for spirial fusion in US$

$$= \frac{5500 \times 40.928}{35} = 6431.5$$

In Singapore, total cost for spirial fusion in US$ = 9000

Difference (in US$) is 9000 – 6431.5 = 2568.5

$$\approx 2500$$

435. e Let volume of data transfer in India = Volume of data transfer in Singapore = x

For INDIA:

ARDT for India $\approx$ \$1 (approx)

$\therefore$ Revenue from data transfer = \$x (approx)

$$\frac{\text{Revenue from data transfer}}{\text{Total Revenue}} \times 100 = 9\% \text{ (approx)}$$

$$\Rightarrow \text{Total Revenue} \simeq \frac{x}{9} \times 100 \text{ (approx)}$$

For SINGAPORE:

ARDT = \$9 (approx)

$\therefore$ Revenue from data transfer = \$9x (approx)

$$\frac{\text{Revenue from data transfer}}{\text{Total Revenue}} \times 100 = 20.5\% \text{ (approx)}$$

$$\Rightarrow \text{Total Revenue} = \frac{9x}{20.5} \times 100 \text{ (approx)}$$

$$\frac{\text{Total Revenue for Singapore}}{\text{Total Revenue for India}} = \frac{\frac{9x}{20.5} \times 100}{\frac{x}{9} \times 100}$$

$$\approx 4 \text{ (approx)}$$

436. c Let total revenue of Sweden in 2010 = x

Therefore total Revenue of India in 2010 = 2x

For Sweden in 2010:

ARDT = \$6

Revenue from data transfer = 2 × 18% of x

$\therefore$ Volume of data transfer = $\frac{2 \times 18\% \text{ of } x}{6}$

For India in 2010:

Let ARDT = y

Revenue from data transfer = $3 \times 9\%$ of $2x$

$\therefore$ Volume of data transfer = $\frac{3 \times 9\% \text{ of } 2x}{y}$

Therefore $\frac{2 \times 18\% \text{ of } x}{6} = \frac{3 \times 9\% \text{ of } 2x}{y} \Rightarrow y = \$9$

Therefore % change in ARDT of India

$$= \frac{9-1}{1} \times 100 = 800\%$$

437. d **For UK**:

$$\frac{\text{Revenue from Data transfar}}{\text{Total Revenue}} \times 100 = 30\% \text{(approx)}$$

$$\text{Revenue from Data transfer} = \frac{30}{100} \times \text{Total Revenue}$$

ARDT = \$ 13 (approx)

$$\therefore \text{Volume of Data transfer} = \frac{30}{100} \times \frac{\text{Total Revenue}}{13}$$

$$\approx \frac{3}{130} \times \text{Total Revenue}$$

For Spain:

$$\frac{\text{Revenue from Data transfar}}{\text{Total Revenue}} \times 100 = 15\% \text{(approx)}$$

ARDT = 6.5 (approx)

$$\therefore \text{Volume of Data transfer} = \frac{15}{100} \times \frac{\text{Total Revenue}}{6.5}$$

$$\approx \frac{3}{130} \times \text{Total Revenue}$$

Similarly, we can check the other options and easily see that the volume of data transfer is NOT the same for given pair countries.

438. a Subscription in Europe in 2006 = 380 Mn USD

Subscription in Europe in 2007 = 500 Mn USD

$$\% \text{ change in } 2007 = \frac{500-380}{380} \times 100 \approx 30\%$$

Therefore subscription (based upon the growth rate of 2007 over 2006) in 2008 should have been

= 500 × 1.3 = 650 Mn USD (approx)

Therefore difference from the estimated subscription

= 650 – 600 = 50 Mn USD (approx)

[Please note that the unit is mentioned neither in the question, nor in the options]

439. a Let the total number of subscribers = 100x

Number of men = 60x

Therefore number of men in 2010

$= 60x \times (1.05)^7 = 84.42x$ (approx)

Number of women = 40x

Therefore, number of women in 2010

$= 40x \times 1.1^7 = 77.94x$ (approx)

Therefore, total number of subscribers

$= 84.42x + 77.94x = 162.36x$

Percentage growth of subscribers

$$= \frac{162.36x - 100x}{100x} = 62.36 \text{ (approx)}$$

440. d Gap in 2008 = 780 – 600 = 180 Mn USD

Gap in 2009 = 810 – 700 = 110 Mn USD

$$\text{Annual \% change} = \frac{110-180}{180} \times 100 = -39\%$$

Absolute change = 39% which is the highest.

Among the other options, option (c) '06-07' is closest, but it will lead to only 22% change in gap.

441. c $\text{Growth rate of } 2007 = \frac{500-380}{380} \times 100 = 31.58\%$

$\text{Growth rate of } 2005 = \frac{280-190}{190} \times 100 = 47.37\%$

Therefore % change in growth rate of 2007 relative to growth rate of 2005 is

$$\frac{47.37 - 31.58}{47.37} \times 100 \approx 35\%$$

442. e Since we do not know what the share prices are during different times of the day, we cannot come to any conclusion.

443. e Abdul buys all his shares at 10 am while the other two purchases once every hour. Since the share prices throughout the day is not specified, we cannot compare the returns of Abdul with the other two. Let us observe the strategies adopted by Bikram and Chetan.

Bikram buys equal number of shares every one hour, irrespective of their prices.

Chetan invests equal amount every one hour, irrespective of the share prices. This means that higher the share price, lesser the number of shares purchased by him. This in turn reduces his return. So whenever the prices are changing, Chetan's returns will be higher than Bikram's. In case, the share prices remain the same, the returns of Bikram and Chetan will be equal.

Hence, the correct option is (e) – none of the above.

444. a As the share prices are increasing throughout the day, the earlier a person invests, the more profitable it would be. Therefore, Abdul who invested in the beginning only, had reaped in the maximum return.

Between Bikram and Chetan, Bikram bought a fixed number of shares every one hour, i.e. towards the end , he must have bought the same number of shares at an even higher rate. Meanwhile, Chetan invested same amount every one hour, i.e. he bought higher number of shares when the prices were low and vice versa. Hence, Chetan's return will be definitely higher than Bikram's.

Additional data for questions 445 to 446:

Let the share prices (in Rs.) at 10 am, 11 am, 12 noon, 1 pm, 2 pm and 3 pm be a, b, c, d, e and f respectively.

Abdul purchased all his shares at 10 am and sold off the same at 3 pm. It is given that he incurred a loss. If he bought n shares, then his investment = na must be more than his sale price = nf, i.e.

$$na > nf \Rightarrow a > f \quad \ldots (i)$$

Similarly, Emily bought/sold same number of shares at 10 am/12 noon and 1 am/3 pm and finally made profit.

i.e. $c + f > a + d \quad \ldots (ii)$

Similar observation for Dane can be made

i.e. $d + e + f > a + b + c \quad \ldots (iii)$

It is given that share price at 12 noon is less than the opening price, i.e.

$$a > c \quad \ldots (iv)$$

Also, share price at 2 pm is lower than the closing price

i.e. $f > e \quad \ldots (v)$

From (i) and (ii), we get

$$c > d \quad \ldots (vi)$$

From (i), (iii) and (vi), we get e > b

Hence, we have a > f > e > b and a > c > d.

445. a The share price was the highest at 10 am.

446. a and d

Share price was lowest either at 11 am or 1 pm. Therefore, option (a) is false.

Share price at 1 pm was higher than that at 12 noon (equation (vi)).

447. c Average gross pay of HR department before transfer

= Rs. 5000 × 1.7

= Rs. 8500

Basic pay of the transferred person = Rs. 8000

New allowance of the transferred person = (80 + 10) = 90% of the basic pay

New Gross pay of the transferred person

= Rs. 8000 × 1.9

= Rs. 15,200

New average gross pay of HR dept.

$$= \text{Rs. } 8500 + \left(\frac{15200 - 8500}{6}\right) = \text{Rs. } (8500 + 1116)$$

$$\text{Percentage change} = \frac{1116}{8500} \times 100 \approx 13\%$$

448. c Since increase in average age of the Finance department. is one year, the age of the person moving from Marketing to Finance is more than that moving from Finance to Marketing, by 1 × 20 = 20 years.

Hence, due to this transfer, cumulative age of Marketing department has gone down by 20 yrs. But since the average age of Marketing department remaining unchanged, the person moving from Marketing to HR has age = (Avg. age of Marketing) – 20 = 15 years.

New average age of HR dept.

$$= \frac{(5 \times 45) + (1 \times 15)}{5 + 1} = 40 \text{ yrs.}$$

449. b Total basic pay of HR = 5 × 5000 (existing) + 2 × 6000 (from Maintenance) + 1 × 8000 (from Marketing) = Rs. 45,000

$$\text{New average} = \frac{45,000}{8} = \text{Rs. } 5,625$$

$$\text{Percentage change} = \frac{625}{5000} \times 100 = 12.5\%.$$

450. c The total production of Charyana in 1991 = 925

The percentage contribution

$$= \frac{925}{5600} \times 100 = 16.52$$

The total production of Charyana in 1992 = 1165

The percentage contribution

$$= \frac{1156}{6300} \times 100 = 18.49$$

The total production of Charyana in1993 = 1300

The percentage contribution

$$= \frac{1300}{6700} \times 100 = 19.40$$

451. d None of the three crops showed a decline in production for two consecutive years in Charyana.

452. c Bajra showed a decline in production in Charyana in 1992 despite showing an increase in production for two consecutive years in Khetistan.

For questions 44 to 47:

Let's assume that the grade points awarded to Himanshu in English, Vijay in Math and Saral in Science are x, y and z respectively.

The sum of the five grade points for:

Abhishek = 39

Saral = 35 + z

Himanshu = 36 + x

Puneet = 44

Vijay = 30 + y

Sanjay = 42

Since Abhishek and Vijay get equal GPAs,

39 = 30 + y

$\Rightarrow$ y = 9

$\Rightarrow$ Y lies in the range 81-90.

Since the sum of the GPAs of Saral and Puneet is equal to the sum of the GPAs of Himanshu and Sanjay,

(35 + z) + 44 = (36 + x) + 42

$\Rightarrow$ x = z + 1

Since the GPA obtained by Himanshu is the highest, x cannot be less than 9. (Otherwise Puneet's GPA would be either equal to or higher than Himanshu's GPA.)

If x = 10 then z = x – 1 = 9. In this case the GPAs of Saral and Puneet would become equal (which violates the condition given in the question).

So x = 9, z = 8.

$\Rightarrow$ X lies in the range 81-90, Z lies in the range 71 – 80.

Sum of the marks obtained by the six students in:

English = 374 + X

Hindi = 470

Math = 445 + Y

Science = 391 + Z

S.Sc. = 462

Since the total marks in Science are definitely less than the total marks in Math, the total marks in Science should be more than the total marks in Hindi.

So 391 + Z > 470

$\Rightarrow$ Z > 79

$\Rightarrow$ Z = 80

The total marks obtained by:

Abhishek = 363

Saral = 422

Himanshu = 333 + X

Puneet = 421

Vijay = 283 + Y

Sanjay = 400

Since the total marks obtained by Himanshu are not the highest, his total should be less than Saral's total.

So 333 + X < 422

$\Rightarrow$ X < 89

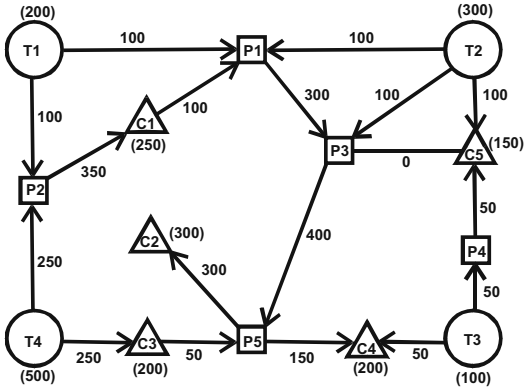
$\Rightarrow$ X lies in the range 81-88.

The final table looks like this:

	English	Hindi	Math	Science	S.Sc.
Abhishek	56	67	92	97	51
Saral	88	79	87	80	88
Himanshu	81-88	81	82	89	81
Puneet	83	90	91	78	79
Vijay	74	65	81-90	67	77
Sanjay	73	88	93	60	86

For questions 457 to 460 :

The figure can be completed on the basis of the given information. It would look like this:



461. c The total number of employees who were appraised in January was 71 + 67 + 97 i.e. 235. These were the employees who were appraised on at least one performance area.

The total number of employees who were appraised in July was 30 + 22 + 29 i.e. 81. These were the employees who were appraised on at least two performance areas.

The number of employees who were appraised on exactly one performance area is 235 – 81 i.e. 154.

462. a The number of employees who were not appraised on Individual Performance in January was 67 + 97 i.e. 164. The employees who were appraised on Individual Performance in July and November were among these 164 employees only. So the number of employees who were not appraised on Individual Performance in 2010 was 164 – (30 + 9) = 125.

For questions 463 to 465 :

Let N(1) = N(6) = a, N(2) = N(5) = b, N(3) = c and N(4) = d. Here a, b and c are distinct (as given). Also, b and d cannot be the same.

Hence, 2a + 2b + c + d = 10 (the total number of people).

$\Rightarrow$ 2(a + b) + c + d = 10

The least possible value of 'a + b' is 3 and it is evident from the above equation that none among a, b, c and d can be greater than or equal to 4. The only possible integer solution to the above equation is when a, b, c and d are equal 1, 2, 3 and 1 respectively.

The following table can thus be concluded:

	Number of occupants	Name of the occupants
Floor 6	1	?
Floor 5	2	?
Floor 4	1	?
Floor 3	3	?
Floor 2	2	?
Floor 1	1	?

From statement (ii) and the above table it is evident that Chuck's floor number is greater than 3 and hence from statement (i) and the above table it can be concluded that Chuck and Berry live on floor 5. Subsequently, Kirk and David live on floor 4 and floor 3 respectively. Clapton, Jimmy and Hammett must occupy floor 1 and floor 2 (in no particular order), as they live below David. From statement (iii) it can be concluded that Gilmour and Page live on floor 3 with David. Finally, it can be concluded from statement (iv) that Jimmy and Eric live on floor 1 and floor 6 respectively. The table can be completed as given below.

	Number of occupants	Name of the occupants
Floor 6	1	Eric
Floor 5	2	Chuck, Berry
Floor 4	1	Kirk
Floor 3	3	David, Gilmour, Page
Floor 2	2	Clapton, Hammett
Floor 1	1	Jimmy

463. b Difference = 3 – 2 = 1

464. a Eric lives on floor 6

465. c Jimmy lives alone on floor 1. The rest 9 people live on floors higher than his.

466. d The Energy Consumption of a department can be obtained by dividing the Total Revenue of that department by the Average Revenue per Unit Energy Consumed by that department. Among the five companies, the Energy Consumption is the highest for Perfitti VM at approximately 1900W-hrs.

467. d There are six departments in all whose Energy Consumption is less than 100W-hrs. They include two departments of UB Group, one of Unilever and three of Wipro.

468. b Unilever has two departments whose Total Revenue is more than Rs. 600 crores and Energy Consumption is less than 200W-hrs. The only other department that satisfies the given criteria is of ITC Ltd.

469. b Both Oil Trade Balance and Total Trade Balance decreased from 1990-91 to 2000-01. The increase in Oil Imports from 1990-91 to 2000-01 was more as compared to the increase in Oil Exports from 2000-01 to 2010-11.

470. d Non-Oil Exports increased by approximately 273% from 2000-01 to 2010-11.

Total Exports increased by approximately 377% from 1990-91 to 2000-01.

Oil Imports increased by 175% from 1980-81 to 1990-91.

Total Imports increased by approximately 55% from 2000-01 to 2010-11.

471. a Absolute percentage change in the total sales of Naruti Kuzuki Ltd. from April to July

$$= \frac{5670 - 5250}{5250} \times 100 = 8\%$$

Absolute percentage change in sales of Dwift from April to July $= \frac{75 - 69}{75} \times 100 = 8\%$

472. d Sales of the other car models of Naruti Kuzuki Ltd. in May 2010

= 549000 – (50 + 72 + 51 + 52)×1000 = 324 × 10^3

Sales of the other car models of Naruti Kuzuki Ltd. in July 2010

= 567000 – (42 + 63 + 33 + 69) × 1000 = 360 × 10^3

Percentage increase

$$= \frac{360 - 324}{324} \times 100 = 11.11\%$$

473. b The ratio of the sales of Sezire to the total sales of cars by Naruti Kuzuki Ltd. in:

$$\text{April} = \frac{49\times1000}{5250\times100} = \frac{7}{75}$$

$$\text{May} = \frac{72\times1000}{5490\times100} = \frac{8}{61}$$

$$\text{June} = \frac{72\times1000}{5580\times100} = \frac{8}{62}$$

$$\text{July} = \frac{63\times1000}{5670\times100} = \frac{1}{9}$$

So the ratio is the highest for May.

474. c We can say that the total fare of:

Delhi-Bhopal + Bhopal-Mumbai

= Mumbai-Delhi + Rs.125.

Hence, the variable fare of:

Delhi-Bhopal + Bhopal-Mumbai

= Mumbai-Delhi + Rs.65.

This is possible only if Mumbai-Delhi falls in the distance range 1001 – 1800 km (Rs. 340). One of Delhi-Bhopal and Bhopal-Mumbai falls in the range 151 – 500 km (Rs. 155) and the other falls in the range 501 – 1000 km (Rs. 250).

475. c Yatri Kumar must have travelled in a Passenger train.

First day: Fare in the Sleeper Class for the distance range 1001 – 1800 km

= Rs. 160 + Rs. 60 = Rs. 220.

Second day: Fare in the Air Conditioned Class for the distance range $\leq$150 km

= Rs. 120 + Rs. 100 = Rs. 220.

For questions 476 to 478 : The table given below can be formed from the data given in the question.

Commodities	Maize	Rice	Sugar Cane	Cotton	Mustard Seeds
Total production cost (Rs. lakhs)	90	75	105	160	140
Profit per ton (Rs. lakhs)	30	15	20	15	40

476. b Profit percentage per ton for:

$$\text{Maize} = \frac{30}{90}\times100 = 33.33\%$$

$$\text{Rice} = \frac{15}{75}\times100 = 20\%$$

$$\text{Sugar Cane} = \frac{20}{105}\times100 = 19.05\%$$

$$\text{Cotton} = \frac{15}{160}\times100 = 9.375\%$$

$$\text{Mustard seeds} = \frac{40}{140}\times100 = 28.57\%$$

So the profit percentage per ton is the highest for Maize.

477. c Two - Sugar Cane and Cotton.

478. c Total quantity of raw material used in production of 1 ton of Cotton $= \frac{27\times10^5}{54} = 50{,}000$ kg

The total area of land required

$$= \frac{10}{200}\times50{,}000\times10^3$$

$$= 2500000\ \text{m}^2 = 2.5\,\text{km}^2$$

479. c For the year 2005-06 and 2008-09

Efficacy Ratio			
	Total	Corporate	Individual
2004-05	0.96	0.98	0.89
2005-06	**1.03**	**0.98**	**1.5**
2006-07	0.98	1.01	0.79
2007-08	0.96	0.99	0.86
2008-09	**1.02**	**1.12**	**0.79**

Alternate method:

2004 - 05: By visual inspection for both "Total I-Tax" and "Corporate I-Tax" efficacy ratio is less than one, hence we need not check for "Individual I-Tax".

2005 - 06: Similarly, efficacy ratio of "Total I-Tax" collections is more than one but for "Corporate I-Tax" it is less than one, calculating for "Individual I-Tax" it comes out to be more than one.

2006 - 07: Similarly efficacy ratio of "Corporate I-Tax" is more than one but that of "Total I-Tax" collection is less than one. The same value for "Individual I-Tax" comes out to be less than one.

2007 - 08: By visual inspection for both "Total I-Tax" and "Corporate I-Tax" efficacy ratio is less than one, hence we need not check for "Individual I-Tax".

2008 - 09: Similarly by visual inspection for both "Total I-Tax" and "Corporate I-Tax", efficacy ratio is greater then one.

480. a For the year 2005-06 in the **Corporate I-Tax**

	Total (Budgeted)	% Grow th	Total (Actual)	% Grow th
2004-05	275	-	285	-
2005-06	345	25.5	335	17.5
2006-07	395	14.5	405	20.9
2007-08	520	31.6	540	33.3
2008-09	730	40.4	715	32.4

	Corporate (Budgeted)	% Grow th	Corporate (Actual)	% Grow th
2004-05	235	-	240	-
2005-06	**300**	**27.7**	**307**	**27.9**
2006-07	340	13.3	335	9.1
2007-08	425	25	430	28.4
2008-09	560	31.8	500	16.3

481. d I. Percentage contribution of Corporate I-Tax to the Total I-Tax in the year 2005-06

$$=\left(\frac{307}{335}\right)\times 100 = 91.6\%$$

In the year 2008-09 = $\left(\frac{500}{715}\right)$ × 100 = 70%

II. Simple Annual Growth Rate

$$=\frac{(215-45)}{45}\times 100\times\left(\frac{1}{4}\right) = 94.4\%$$

III. This is also true as evident from the table provided.

482. c Sum of all the entries corresponding to the year 2009 = Rs. 3408 cr.

483. b Compare the values of

$$\frac{\text{Sales}_{09}}{\text{Sales}_{08}}\times\frac{(\text{Market Share})_{08}}{(\text{Market Share})_{09}}$$

for A = 1.168

B = 1.264

C = 0.925

D = 0.982

E = 1.211

484.a Let a total of 100N units be sold in both the years 2008 and 2009.

Statement 1:

A could not register growth in South and C could not register growth in both South and East.

Statement 1 is true.

Statement 2:

Number of units sold by B in 2009 in South

$$=\left(\frac{12}{100}\times 100N\right)\frac{77}{314} = 2.94N$$

Number of units sold by B in 2008 in South

$$=\left(\frac{10}{100}\times 100N\right)\frac{17}{214} = 0.79N$$

Percentage increase

$$=\left(\frac{2.94-0.79}{0.79}\right)\times 100 = 272\%$$

Statement 2 is false.

Statement 3:

Number of units sold by C in 2009 (23N) is greater than the number of units sold by C in 2008 (22N).

Statement 3 is false.

For questions 485 to 487 : The given data can be tabulated as shown below.

Counties	NCD deaths in 2008			NCD deaths in 2009		
	Male	Female	**Total**	Male	Female	**Total**
Indonesia	582	815	**1397**	275	850	**1125**
Russia	827	892	**1719**	950	925	**1875**
India	2967	2273	**5240**	3160	2020	**5180**
China	4323	3670	**7993**	4195	3850	**8045**
USA	1054	1150	**2204**	1150	530	**1680**
Total	**9753**	**8800**	**18553**	**9730**	**8175**	**17905**

485. c In three countries, viz. Indonesia, India and USA, the number of deaths due to NCDs in 2009 was less than that in 2008.

486. a Required percentage

$$=\frac{8800-8175}{8800}\times 100 = 7.10.$$

487. b Required difference = (9753 – 9730) × 1000

= 23000.

For questions 488 to 490 :

The total number of athletes sent by:

USA = $2400\times\frac{8}{24} = 800$

China = $2400\times\frac{11}{24} = 1100$

Russia = $2400\times\frac{5}{24} = 500$

488. c Total number of Cycling athletes sent by the three countries together

= 0.15 × 800 + 0.12 × 1100 + 0.16 × 500 = 332

Total number of female Cycling athletes sent by the three countries together = 166

Number of female Cycling athletes sent by Russia

$$=\frac{1}{20}\times(0.16\times 500) = 4$$

Number of Cycling athletes sent by USA

$$=\frac{4}{5}\times(0.15\times 800) = 96$$

Hence, the number of female Cycling athletes sent by China = 166 – (4 + 96) = 66.

489. a Maximum number of athletes sent by China for a game = 0.25 × 1100 = 275

Minimum number of athletes sent by Russia for a game = 0.03 × 500 = 15

Hence, the required difference = 275 – 15 = 260

490. d The total number of Water Polo athletes sent by the three countries put together

$= 0.15 \times 800 + 0.25 \times 1100 + 0.10 \times 500 = 445$

Hence, the required percentage

$$= \frac{445}{2400} \times 100 = 18.54.$$

491. c Let the GDP of Belgium be y Euros.

$$\therefore \quad y \times \frac{4.8}{100} \times 1.5 = x \Rightarrow y = \frac{100}{7.2}x$$

Hence, the debt (in Euros) of Belgium

$$= \frac{100.8}{100} \times \frac{100}{7.2}x = 14x.$$

492. c Two countries, viz. Denmark and Finland, were rated AAA.

493. a Let the GDP (in Euros) of Italy be x.

Therefore, the GDP (in Euros) of Finland = 1.5x.

The fiscal-deficit of:

Italy = 0.051x

Finland = 0.034 × 1.5x = 0.051x.

Hence, the required percentage = 0.

494. b Profitability of NIIT in 1999 is $\frac{106}{481} = 0.2204$

Profitability of Aptech in 1999 is $\frac{51}{320} = 0.1594$

Profitability of SSI in 1999 is $\frac{34}{85} = 0.4$

Profitability of Tata Infotech in 1999 is $\frac{6}{420} = 0.0143$

Average of the profitabilities of the four companies in 1999

$$= \frac{\frac{106}{481} + \frac{51}{320} + \frac{34}{85} + \frac{6}{420}}{4} = 0.1985.$$

$\therefore$ Only Tata Infotech and Aptech have a profitability less than the average of the profitabilities in 1999.

495. b Total revenues of four companies in 2001

$= 509 + 285 + 231 + 523$

$= 1548$ crore.

Total profit in 2001 $= 20 + 54 + 51 + 27$

$= 152$ crore

So total cost $= (1548 - 152) = 1396$ crore

In 2002, total revenue $\approx (1548 - 155)$ crore

$= 1393$ crore.

Total cost $\approx (1396 + 140) = 1536$ crore

Hence, net profit $= (1393 - 1536)$

$= -143$ crore

$\therefore$ Profitability $= \frac{-143}{1393} = -10.25\%.$

496. a The profitability of NIIT, Aptech, SSI and Tata Infotech in 2001 is $\frac{20}{509}, \frac{54}{285}, \frac{51}{231}$ and $\frac{27}{523}$ respectively.

Thus, the correct order is:

NIIT, Tata Infotech, Aptech and SSI.

497. c The profitability SSI is highest in 2000 and it is $= \frac{49}{131}$.

For questions 498 to 499: The following table can be drawn.

B-school	No.of companies	No.of students	No. of offers	Offers per company	Offers per student
FMS	60	100	125	2.08	1.25
IMT	90	150	225	2.5	1.5
IMI	50	120	150	3	1.25
K.J.Somai	70	150	150	2.14	1
Narsee Monjee	80	150	200	2.5	1.33

498. a IMT has the highest number of offers per student.

499. c IMI has the highest ratio of offers per company.

500. d Total salary for FMS $= 100 \times 7$

$= ₹\ 700$ lakh.

Total salary of PPO holders $= (25\%$ of $100) \times 10$

$= ₹\ 250$ lakh.

$\therefore$ Average annual salary of people not getting PPOs $= \frac{700 - 250}{75} = 6$ lakhs.

501. a Put n = 5,in the given relation to get $P_5 = 267$.

$$P_6 = P_5 - P_4 + P_3 - P_2$$

$$\Rightarrow \quad P_6 = -P_1$$

$$P_7 = -P_2,$$

Similarly, $P_8 = -P_3$

$$P_9 = -P_4$$

$$P_{10} = -P_5.$$

The sequence repeats its terms after every 10 terms.

Following this pattern, we observe that

$$P_{531} = P_{(530+1)} = P_1 = 211$$

$$P_{753} = P_{(750+3)} = P_3 = 420$$

$$P_{975} = P_{(970+5)} = P_5 = 267$$

So; $P_{531} + P_{753} + P_{975} = 211 + 420 + 267 = 898.$

502. c Minimum percentage to pass in a subject = 33.33%

Thus, 40° out of 360° represents 33.33%.

$\Rightarrow$ 60° represents 50%.

503. b Let maximum marks for each subject other than maths = 100

$\therefore$ Maximum marks in maths = 200.

For Geoffrey, 144° = 200 marks.

$\Rightarrow$ 360° = 500 marks.

For Tommen, if 120° = 200 marks then

72° > 100 marks,

which is not possible.

$\therefore$ For Tommen, 72° = 100 marks

$\Rightarrow$ 360° = 500 marks.

$\therefore$ Ratio of maximum marks, in all the subjects put together, which Geoffrey can score to the maximum marks, in all the subjects put together, which Tommen can score = 1 : 1.

504. d Before the change in pattern,

144° = 100 marks

$\Rightarrow$ 360° = 250 marks.

After the change in pattern,

80° = 100 marks

$\Rightarrow$ 360° = 450 marks.

$\therefore$ Desired ratio = 450 : 250 = 9 : 5.

505. a By the problem,

144° = 100 marks

$\Rightarrow$ 360° = 250 marks.

$$\therefore \text{ Average percentage} = \frac{250}{500} \times 100$$

$$= 50\%.$$

506. a Let the total investment in education sector by India be Rs. 'P' crore the same in China will be Rs. 1.6 P crore.

For china, 32% of 1.6 P was from ADB loans which will constitute

$$A = \frac{0.32 \times 1.6P}{\left(\frac{54}{360} \times 7200\right)} \times 100\%$$

For India,

$$B = \frac{0.2 \times P}{\left(\frac{40}{360} \times 7200\right)} \times 100\%$$

A : B = 256 : 135.

507. b Amount of loan invested in transport sector by China

$$= \frac{60}{100} \times \frac{24}{360} \times 7200 \text{ cr}$$

Total investment in transport by china

$$= \frac{60}{100} \times \frac{24}{360} \times 7200 \times \frac{100}{55} = 523.63 \text{ cr}$$

Amount of loan invested in transport sector by India

$$= \frac{60}{100} \times \frac{24}{100} \times 7200 \text{ cr}$$

Total investment in transport by India

$$= \frac{60}{100} \times \frac{24}{360} \times 7200 \frac{100}{50} = 480 \text{ cr}$$

$$\text{Required percentage} = \frac{480}{523.63} \times 100 = 91.67\%.$$

508. a Loan amount invested in education

= 20% of 150 = Rs 30 cr

Loan amount invested in Health

= 22% of 120 = Rs 26.4 cr

Loan amount invested in Agriculture

= 16% of 400 = Rs 64 cr

$$\text{The required percentage} = \frac{30 + 26.4 + 64}{\left(\frac{40}{360} \times 7200\right)} \times 100$$

= 15.05.

509. c Total investment will be maximum when maximum loan amount is invested in education i.e. Rs. 440 cr. And Rs. 30 cr each is invested in other two sectors.

Total investment in the 3 sectors will be

$$= 440 \times \frac{100}{20} + 30 \times \frac{100}{30} + 30 \times \frac{100}{50}$$

= Rs. 2360 cr

For questions 510 to 513 :

	Total Capacity (n MW units)	Units Sold (In MW units)
A	8,500	7,565
B	6,250	5,437.50
C	10,000	9,000
D	8,500	7,225
E	9,500	7,600

510. d Total capacity of India = $6{,}250 \times \frac{100}{12.5}$

= 50,000 MW units

Thermal capacity of India = 95% of total capacity

= 47,500 MW units

Total capacity of these five power plants

= 42,750 MW units

Required percentage = $\frac{42,750}{47,500} \times 100$ = 90%.

511. b The correct order is C > E > A > D > B

512. d Profitability can be compared by comparing the ratio of total revenue to total cost.

Profitability for A = $\frac{(89\% \text{ of TC}) \times 3.4}{(93\% \text{ of TC}) \times 2.1} = \frac{89 \times 3.4}{93 \times 2.1}$

= 1.549.

where TC is the total capacity of that power plant.

Same values of others are

B → 1.406, C → 1.4108

D → 1.2617, E → 1.257

So, B has the third highest ratio and hence third highest profitability.

513. b Only statement 'b' is true.

Foq questions 514 to 517 :

Product	Total cost of production (In Rs. Crore)		Total profit (In Rs. Lakh)	
	Type P	Type Q	Type P	Type Q
A	13.64	11.36	204.6	340.8
B	38.71	36.29	967.8	725.8
C	15	22.5	225	450
D	16.67	20.83	250.1	208.3
E	14.3	10.7	357.5	214
F	25	25	500	375

514. 4 The profit made on items of Type Q is not more than the profit made on items of Type P for products B, D, E and F.

515. c For D, the desired ratio is lowest among all the products.

516. 3 For A, B and E, the overall profit percentage is more than 20%.

517. 55 Total Cost = 13.64 + 16.67 + 25

= Rs. 55.31 crore.

For questions 518 to 521:

The data given in the bar graph can be tabulated as shown below.

Let the total number of visitors in the year 2006 be 100x.

Year	Total number of visitors	Number of male visitors	Number of female visitors
2007	120x	60x	60x
2008	108x	81x	27x
2009	144x	96x	48x
2010	180x	108x	72x
2011	160x	104x	56x

518. The total number of female visitors in the year 2011

= 56x = 56 × 468.50 = 26236

519. Percentage growth in the number of female visitors from 2009 to 2010

= $\frac{72x - 48x}{48x} \times 100$

= 50%

520. Gender Gap in

the year 2009 = 96x – 48x = 48x

the year 2011 = 104x – 56x = 48x

Hence, it is equal in 2009 and 2011.

521. According to the question,

108x = 14796

⇒ x = 137

Hence, required number = 120 × 137

= 16440.

For questions 522 to 525:

Let the number of students who participated from East, West, North, South and Central regions be 20k, 16k, 21k, 25k and 18k respectively, where 'k' is a natural number.

The total number of students who participated from the five regions is equal to 100k.

⇒ (180 + 116 + 175 + 200 + 150) + 279 = 100k

⇒ 100k = 821 + 279

⇒ k = 11

Let the number of students who participated in Swimming and Cycling from the West region be x and y respectively, where x + y = 60.

The final table is given below.

	East	West	North	South	Central
Swimming	23	**x**	42	64	19
Lawn Tennis	45	27	**56**	46	31
Cycling	39	**y**	41	18	45
Badminton	52	49	23	38	**48**
Hockey	21	24	37	**75**	25
Football	**40**	16	32	34	30

522. The sum of the number of students who participated from the West region in Swimming and Cycling is 60. Since 60 when divided in the ratio 3 : 5 does not give integer values, 3 : 5 is the answer.

523. The number of students who participated in

Lawn Tennis = 205

Badminton = 210

Hockey = 182

Football = 152

In case of Swimming the number will be highest if x = 59, y = 1, and in case of Cycling the number will be highest if x = 1, y = 59. However, the number of students who participated in Badminton will still be the highest among the six events.

524. Required percentage = $\frac{48}{40} \times 100 = 120.$

525. We have x + y = 60.

According to the given condition, the possible values of x are 35, 40, 45, 50 and 55.

Hence, the required answer

= 75 (35 + 40 + 45 + 50 + 55)

= 16875.

For questions 526 to 529:

Since each department appears four times in the given combinations, the total number of employees in the organization

$$= \frac{870 + 600 + 780 + 670 + 630 + 850 + 640}{4}$$

= 1260.

The number of employees in MR department

= (MR, HR, FN, OP + TC, TL, AD, MR) – 1260

= (870 + 600) – 1260 = 210.

Similarly, the number of employees in HR, FN, OP, TC, TL and AD are 190, 220, 250, 120, 40 and 230 respectively.

Using the information given in the graph, the data can be tabulated as shown below.

Department	Total number of employees	Male employees	Female employees
MR	210	147	63
HR	190	76	114
FN	220	143	77
OP	250	175	75
TC	120	96	24
TL	40	30	10
AD	230	138	92

526. The ratio = $\frac{114}{96} = \frac{19}{16}$, i.e. 19:16.

527. The difference between the number of male employees and the number of female employees is the highest in OP department, i.e. 100.

528. The percentage

$$= \frac{(147 + 143 + 138) - (114 + 75 + 92)}{(114 + 75 + 92)} \times 100$$

$$= \frac{147}{281} \times 100 \approx 52.$$

529. The difference

= (147 + 76 + 143 + 175 + 96 + 30 + 138)

– (63 + 114 + 77 + 75 + 25 + 10 + 92)

= 350.

For questions 530 to 533:

Dorms 1, 3, 5, 7, 9 – either need moderate repair

Or

Extensive repair

Dorms 2, 4, 6, 8, 10 – either need light repair or extensive repair

Since 3/6, 3/9, dorm 6, light repair dorm 9 – moderate repair.

Since, dorm 8 needing the minimum repair = 1 crore.

We gather following information from the data given.

Dorms	Estimated repair cost (crore)
1	3–4
2	2
3	3–4
4	5
5	3–4
6	2
7	6
8	1
9	3–4
10	6

530. Dorm 10 estimated repair cost is 6 crore

531. 9 Odd number dorms are 1, 2, 5, 7, 9

Since there are 3 dorms whose repair cost is 3 crore and 1 dorm with repair cost of 4 crore

$\therefore$ total cost for odd-numbered dorms

= 3 × 3 + 4 + 6 = 19 crore.

532. Since total cost for repairing 4 women's dorm = 20 crores

The only possible combination is repair cost of dorm 4, 7, 9, 10.

$\therefore$ dorm 4 + dorm 7 + dorm 9 + dorm 10 = 20 crore

5 + 6 + dorm 9 + 6 = 20.

Dorm 9 = 3 crore.

533. Dorm 10 is a women's dorm

For questions 534 to 537:

Sales figures during second quarter of 2016:-

April, May and June form an A.P i.e. ,

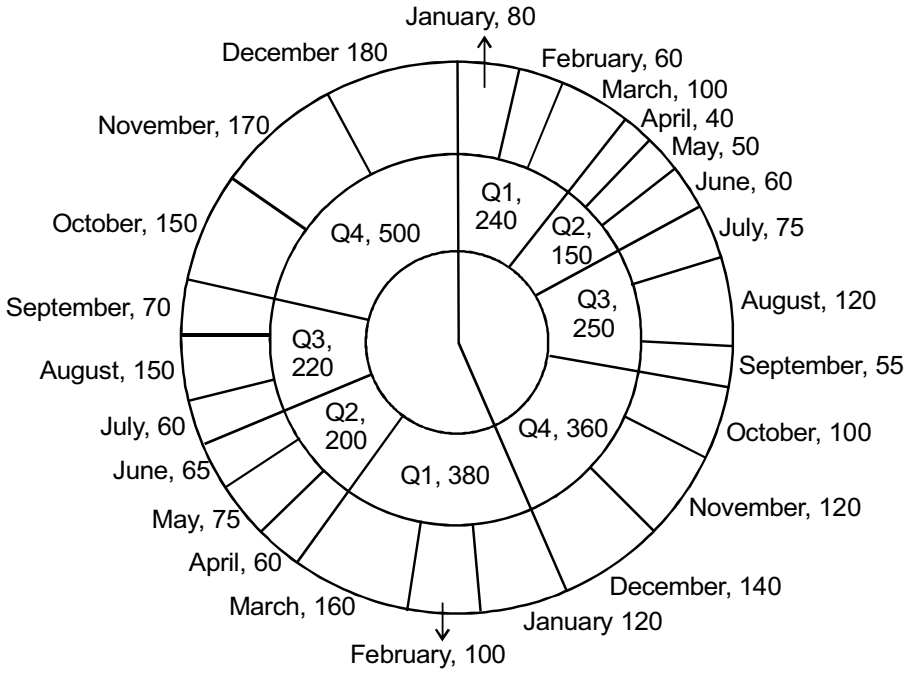
40 + (40 + d) + (40 + 2d) = 150

d = 10

$\therefore$ Sales figures of April, May and June (2016) are 40, 50 and 60 respectively.

Similarly, sales figures of October, November, December (2016) are 100, 120 and 140 respectively, since, they also form an A.P.

Complete figure is:-



534. Percentage increase in sales in December 2017 as compared to the sales in December 2016 is:

$$\frac{180-140}{140}\times 100 = 28.57\%$$

535. Quarter 1 : $\frac{380-270}{270}\times 100 = 40.74\%$

Quarter 2 : $\frac{200-150}{150}\times 100 = 33.33\%$

Quarter 4 : $\frac{500-360}{360}\times 100 = 38.89\%$

Therefore, quarter 1.

536. In Q1 of 2007 and Q4 of 2017 increase in sales has been observed.

Q2 of 2016 : $\frac{240-150}{240}\times 100$

$= \frac{90}{240}\times 100 = 37.5\%$

Q2 of 2017 : $\frac{380-200}{380}\times 100$

$= \frac{180}{380}\times 100$

$= 47.37\%$

Therefore, Q2 of 2017.

537. March of 2016 : $\frac{100-60}{60}\times 100$

$= \frac{40}{60}\times 100$

$= 66.67\%$

October of 2016 : $\frac{100-55}{55}\times 100 = 81.82\%$

October of 2017 : 114.28%

March of 2017 : 60%

For questions 538 to 541:

By statement (6), Jatin scored 100% in exactly one section, therefore, that section has to be DI.

So composite score of Jatin will be:

2 × 20 + 16 + 14 = 70.

Indu's composite score is 60 (By statement 6)

Let Indu scored 100% in DI, then

2(20) + 8 + GA = 60

$\Rightarrow$ GA = 12

But since, Indu was recruited (by statement 4), therefore, she must have scored 70% or more in two or more sections.

Hence Indu scored 100% in, GA,

2(DI) + 8 + 20 = 60

DI =16

By statement (5), Danish, Harini and Indu had scored the same marks in GA, i.e., 20.

By statement (2), Ajay was the unique highest scorer in WE, i.e., he could score 19 or 20. But, if Ajay scores 19 in WE then his composite score will be 51, which is Danish's composite score.

Therefore, Ajay scored 20 in WE.

Since Indu was recruited (by statement 4), Jatin would be definitely recruited since his composite score is more than Indu.

Now, since Geeta is one of the recruited people with lowest composite score, therefore her score has to be definitely more than 52, hence, her score in WE will be either 19 or 20.

But her score in WE cannot be 20 as it will give the composite score of 54, which is already a composite score of Chetna and she is disqualified as she did not score 70% or more in two subjects.

Therefore, Geeta scored 19 in WE and have a composite score of 53.

So we get the table as:-

Candidate	Marks out of 20			Composite score	Status
	DI	WE	GA		
Ajay	8	20	16	52	qualified
Bala		9	11		disqualified
Chetna	19	4	12	54	disqualified
Danish	8	15	20	51	qualified
Ester	12	18	16	58	qualified
Falak	15	7	10	47	disqualified
Geeta	14	19	6	53	recruited
Harini	5		20		
Indu	16	8	20	60	recruited
Jatin	20	16	14	70	recruited

538. 1. Jatin scored 70 and Danish 51. True

2. Indu scored 16 in DI and Chetna scored 19 in DI. True.

3. Jatin and Indu scored 14 and 20 in GA. False.

Both (1) and (2)

539. If Bala scored same as Jatin in DI, i.e., 20 then composite score of Bala would be 2(20) + 9 + 11 = 60. Which is same as Indu's composite score, hence, not possible.

540. Chetna's composite score is 54.

Bala's composite score:-

$2(DI) + 9 + 11 \le 50$

$DI \le 15$, but 15 and 14 are already the scores in DI of Falak and Geeta respectively. Therefore, Bala could have scored maximum 13 marks in DI.

541. Harini could score maximum 14 marks in WE.

For questions 542 to 545:

542. Revenue = (Market Share) × (Unit Selling Price). Check the following table for the year 2016.

BRAND	Market Share (%)	Unit Selling Price	Profitability	Revenue = Market Share × Unit Selling Price
Azra	40	15000	10	6000
Bysi	25	20000	30	5000
Cxqi	15	30000	40	4500
Dipq	20	25000	30	5000

So Azra has the highest revenue in 2016.

543. Profit = (Market Share) × (Unit Selling Price) × (Profitability). Check the following table for the year 2016.

Brand	Profits
Azra	600
Bysi	1500
Cxqi	1800
Dipq	1500

Cxqi has the highest profit in 2016.

544. Profit = (Market Share) × (Unit Selling Price) × (Profitability).

Now for the year 2017, Cxqi offered 40% discount on its Unit Selling price.

New Unit Selling Price = 30000 – (0.4 × 30000) = 18000.

Due to this market share of Cxqi increased by 15%. So new market share for Cxqi = 30%.

There is a decrease of 5% in market share for Azra, Bysi, and Dipq respectively.

Also, profitability for Cxqi in 2017 = half of profitability in 2016.

Check the updated table for year 2017.

Brand	Market Share	Unit SP	Profitability	Profits
Azra	35	15000	10	525
Bysi	20	20000	30	1200
Cxqi	30	18000	20	1080
Dipq	15	25000	30	1125

Bysi has the highest profit in 2017.

545. Profit given in the previous table has increased by 40% in 2017. We get, the following table with comparing profits of brands in 2016 and 2017.

Brand	Profit (2016)	Profit (2017)
Azra	600	525 × 1.4 = 735
Bysi	1500	1200 × 1.4 = 1680
Cxqi	1800	1080 × 1.4 = 1512
Dipq	1500	1125 × 1.4 = 1575

As it can be observed from the table that for only Cxqi profit is decreasing. So, the answer is Azra, Bysi, Dipq.

For questions 546 to 549:

By looking at the table of conditions given for each product to fall under a category, we can easily make out that the four categories can be divided into four quadrants.

1. Promising is the top-right quadrant.
2. Blockbuster is the bottom-right quadrant.
3. No hope is the bottom left quadrant.
4. Doubtful is the top left quadrant.

546. Since product categories have been classified into 4 quadrants, just compare the sum of areas of the boxes in the quadrants to check which category has the maximum revenue as the area of a box is proportional to the revenue. Check the following table.

Promising	14
Blockbuster	36
No-hope	15
Doubtful	29

Blockbuster has the maximum area out of all the categories. So it has the maximum revenue.

547. From statement 1, it can be deduced that in the Blockbuster category, the number of products for A, B and C is 2, 2 and 3 respectively, as this category already has 2 Alfa products, 1 Bravo product, 2 Charlie products

From statement 2, it can be deduced that in the No-hope category, the number of products for A, B and C is 3, 1 and 2 respectively.

From statement 3, it can be deduced that in the Promising category, the number of products for A, B and C is 1 each. (Since there are 3 boxes in this category).

From statement 4, it can be deduced that in the doubtful category, the number of products for A, B and C is 4, 3 and 0 respectively.

Check the following table.

	A	B	C
Promising	1	1	1
Blockbuster	2	2	3
No-hope	3	1	2
Doubtful	4	3	0

So the number of products for B in No-hope, Doubtful, Promising, and Blockbuster is 1, 3, 1 and 2 respectively.

548. Using statement 5, 6, 7 and 8, it can be observed which box belongs to which company in the given different categories.

Check the following table to observe the revenues of different products in different categories.

	A	B	C
Promising	9	3	2
Blockbuster	9	10	17
No-hope	7	4	4
Doubtful	12	17	0
Total	37	34	23

So it can be seen from the table that Bravo's revenue from Blockbuster products is less than Alfa's revenue from Doubtful products. Hence, option (4) is incorrect.

549. Check the table given in the previous question, the total revenue of Bravo was Rs. 34 crore.

■■