CHAPTER 1

# Tables

## SOLVED EXAMPLES

**Directions for examples 1 to 4:** Answer the questions on the basis of the information given below.

The table given below shows the per capita $CO_2$ emission and populations of six countries during the period 2013-2016. The total $CO_2$ emission (in million tonnes) of the world in 2013, 2014, 2015 and 2016 was 30700, 31433, 32155 and 32042 respectively.

| Country | Per Capita $CO_2$ emission (in tonnes) | | | | Population (in millions) | | | |
|---|---|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2013 | 2014 | 2015 | 2016 |
| **China** | 4.4 | 4.4 | 4.9 | 5.2 | 1314 | 1321 | 1326 | 1350.8 |
| **Germany** | 9.8 | 9.8 | - | 9.6 | 81.6 | 82.4 | 80.5 | 81.4 |
| **India** | 0.3 | 0.3 | 0.4 | 0.4 | 1095 | 1129 | 1140 | 1166 |
| **Japan** | 1.1 | 1.1 | 1 | 1.3 | 124.6 | 126.1 | 127.2 | 127.6 |
| **Russia** | 0.9 | 0.9 | 0.9 | 1 | 138.8 | 140.2 | 141.2 | 142.6 |
| **USA** | 0.2 | 0.2 | 0.2 | 0.2 | 298.4 | 301.4 | 304 | 306.5 |

**1.** The $CO_2$ emission of China was approximately what percent of the total $CO_2$ emission of the world during the given period?

(1) 10 (2) 20 (3) 12 (4) 28

**2.** The $CO_2$ emission of Russia and Japan put together was approximatelyn what percent of that of India and USA put together during the given period?

(1) 60 (2) 45 (3) 75 (4) 70

**3.** If the $CO_2$ emission of Germany was 2.4% of the total $CO_2$ emission of the world during the given period, then what was the per capita $CO_2$ emission (in tonnes) of Germany in 2015?

(1) 7 (2) 10 (3) 9 (4) 8

**4.** The total $CO_2$ emission by which country was second lowest in 2014

(1) Germany (2) Russia (3) India (4) Japan

**For examples 1 to 4:**

**1.** 2 The total $CO_2$ emission (in million tonnes) of the world during the given period

= 30700 + 31433 + 32155 + 32042 = 126330

The total $CO_2$ emission (in million tonnes) of China during the give period

= 4.4 × (1314 + 1321) + 4.9 × 1326 + 5.2 × 1350.8 = 25115.56

Hence, the required percentage $= \frac{25115.56}{126330} \times 100 \approx 20.$

**2.** 1 The total $CO_2$ emission (in million tonnes) of Russia and Japan put together

= [0.9 × (138.8 + 140.2 + 141.2) + 1 × 142.6] + [1.1 × (124.6 + 126.1) + 1 × 127.2 + 1.3 × 127.6] = 1089.3

The total $CO_2$ emission (in million tonnes) of India and USA put together

= [0.3× (1095 + 1129) + 0.4 × (1140 + 1166)]+ [0.2 × (298.4 + 301.4 + 304 + 306.5)] =1831.66

Hence, the required percentage $= \frac{1089.3}{1831.66} \times 100 \approx 60.$

**3.** 4 Let the per capita $CO_2$ emission (in tonnes) of Germany in 2015 be 'x'.

$\therefore$ 9.8 × (81.6 + 82.4) + 80.5 × x + 9.6 × 81.4 $= \frac{2.4}{100} \times 126330$

$\Rightarrow x \approx 8.$

**4.** 2 It is clear from the table that the lowest emission of $CO_2$ is by USA and the second lowest is by Russia.

**Directions for examples 5 to 8:** Answer the questions on the basis of the information given below.

The following table provides partial information about the composition of six different alloys namely A, B, C, D, E and F. Each of these six alloys contains the five different elements namely Zinc, Tin, Lead, Copper and Nickel. An alloy G, the composition of which is not given in the table, contains alloys A, B and C in the ratio 2 : 1 : 3. It is also known that in alloy G, tin, lead and copper are present in an equal quantity.

| Alloy | Zinc | Tin | Lead | Copper | Nickel |
|---|---|---|---|---|---|
| **A** | 10% | 40% | | | 10% |
| **B** | 25% | 15% | 50% | 5% | 5% |
| **C** | 15% | | 20% | | 35% |
| **D** | 20% | 25% | 15% | 30% | 10% |
| **E** | 5% | 50% | 25% | 5% | 15% |
| **F** | 40% | 10% | 5% | 30% | 15% |

**5.** Find the percentage of copper in alloy A.

(1) $\frac{95}{9}$ (2) $\frac{95}{3}$ (3) $\frac{25}{9}$ (4) $\frac{25}{3}$

**6.** If an alloy X, which contains 15% nickel, at least 15% zinc and at most 20% copper, is to be made, how many combinations of exactly two of the six mentioned alloys can be used to make it?

(1) Three (2) Four (3) Five (4) Two

**7.** Which of the following can be a value of the ratio in which alloys A, E and F need to be mixed to get at least 12% lead in the resulting mixture?

(1) 4 : 1 : 1 (2) 2 : 1 : 3 (3) 1 : 2 : 3 (4) 1 : 2 : 4

**8.** If an alloy Z, which contains at least 8.25% nickel, is to be made by using the alloys mentioned in the table, the percentage of alloy B in alloy Z cannot be more than

(1) 95.46% (2) 83.12% (3) 97.24% (4) 89.16%

**For examples 5 to 8:**

The given information can be tabulated as:

| | Zinc | Tin | Lead | Copper | Nickel |
|---|---|---|---|---|---|
| **A** | 10% | 40% | (x) % | (40 – x)% | 10% |
| **B** | 25% | 15% | 50% | 5% | 5% |
| **C** | 15% | (y) % | 20% | (30 – y)% | 35% |
| **D** | 20% | 25% | 15% | 30% | 10% |
| **E** | 5% | 50% | 25% | 5% | 15% |
| **F** | 40% | 10% | 5% | 30% | 15% |

**5.** 2 In alloy G, the percentage of:

$\text{Tin} = \left(2 \times \frac{40}{6} + 1 \times \frac{15}{6} + 3 \times \frac{y}{6}\right) = \frac{3y + 95}{6}$

$\text{Lead} = \frac{2x + 110}{6}$

$\text{Copper} = \frac{175 - 2x - 3y}{6}$

$\text{Now, } (3y + 95) = (2x + 110) = (175 - 2x - 3y) \Rightarrow x = \frac{25}{3} \text{ and } y = \frac{95}{9}$

$\text{Therefore, the percentage of copper in alloy A} = (40 - x) = \left(40 - \frac{25}{3}\right) = \frac{95}{3}.$

**6.** 4 There are two possible ways in which the alloy X can be formed. The possible combinations are (E and F) and (B and C).

**7.** 3 The percentage of lead in A, E and F is $\frac{25}{3}\%$, 25% and 5% respectively.

By checking options:

Option (1): Percentage of lead in the mixture $= \frac{1}{6}\left(4 \times \frac{25}{3} + 1 \times 25 + 1 \times 5\right) = \frac{95}{9}\% < 12\%$

Option (2): Percentage of lead in the mixture $= \frac{1}{6}\left(2 \times \frac{25}{3} + 1 \times 25 + 3 \times 5\right) = \frac{85}{9}\% < 12\%$

Option (3): Percentage of lead in the mixture $= \frac{1}{6}\left(1 \times \frac{25}{3} + 2 \times 25 + 3 \times 5\right) = \frac{110}{9}\% > 12\%$

Option (4): Percentage of lead in the mixture $= \frac{1}{7}\left(1 \times \frac{25}{3} + 2 \times 25 + 4 \times 5\right) = \frac{235}{21}\% < 12\%$

Hence, option (c) is the correct answer.

**8.** 4 Since the percentage of nickel in alloy B and alloy Z is 5% and 8.25% respectively, in order to maximize the percentage of B in Z, we need to choose alloy in which the percentage of nickel is greater than 8.25% and also the maximum among the given alloys. So, we need to choose alloy C.

Let the percentage of alloy B in alloy Z be 'x'%.

$\therefore 5x + 35(1 - x) = 8.25 \Rightarrow x = 89.16\%$

**Directions for examples 9 to 12:** Answer the questions on the basis of the information given below.

An FMCG company, planning to produce potato chips of three different flavours, namely Mint, Chilly and Cream, conducted a survey among 1000 people in each of the three market segments Metros, Towns and Villages. In the survey, all the participants were requested to select exactly one of the four options out of P, Q, R and S given in the survey response sheet. One of the options out of the four was for not liking any of the three varieties of chips, and each of the other three was for liking a different variety of chips out of the three. The following table represents the responses recorded during the survey.

| | **P** | **Q** | **R** | **S** |
|---|---|---|---|---|
| **Market Segment Villages** | 95 | 390 | 135 | 380 |
| **Market Segment Metros** | 180 | 405 | 230 | 185 |
| **Market Segment Towns** | 210 | 220 | 220 | 350 |

As the brand manager of the company, who compiled the data, knew which option indicated which flavour, he derived the following conclusions from the given table.

I. In towns, as many as 22% of all the participants did not like any of the three flavours.

II. The total number of participants who selected Chilly flavour, differed from the total number of participants who selected Cream flavour by 100.

**9.** If it was in villages where the minimum number of participants liked Mint flavour, then which of the following can be definitely concluded?

(1) It was in Metros where the maximum number of participants liked Chilly flavour.

(2) It was in Metros where the minimum number of participants liked Cream flavour.

(3) It was in Villages where the maximum number of participants liked Chilly flavour.

(4) It was in Villages where the minimum number of participants did not like any of the three flavours.

**10.** If Cream flavour was liked by the minimum number of participants in all the three market segments put together, then which of the following statements is definitely false?

(1) Out of the participants who liked Chilly flavour in the three market segments, the minimum number belonged to villages.

(2) Out of the participants who liked Mint flavour in the three market segments, the minimum number belonged to metros.

(3) Out of the participants who did not like any of the three flavours in the three market segments, the minimum number belonged to villages.

(4) Out of the participants who did not like any of the three flavours in the three market segments, the maximum number belonged to metros.

**11.** In towns, if the number of participants who liked Mint flavour was the minimum, then which of the following is definitely true?

(1) In villages, the number of participants who liked neither Chilly flavour nor Cream flavour was 280.

(2) In towns, the number of participants who liked neither Mint flavour nor Cream flavour was 570.

(3) In metros, the number of participants who liked neither Chilly flavour nor Mint flavour was 635.

(4) In towns, the number of participants who liked neither Chilly nor Cream flavour was 430.

**12.** A maximum of how many of the following five statements can simultaneously be true?

I. In Villages, 135 participants did not like any of the three flavours.

II. In Towns, 210 participants liked Cream flavour.

III. In Metros, 185 participants liked Chilly flavour.

IV. In Towns, 220 participants liked Cream flavour.

V. In Metros, 180 participants liked Mint flavour.

(1) 4 (2) 3 (3) 2 (4) 5

**For examples 9 to 12:** The total number of participants in the surveys conducted in each of the three market segments is 1000. The exact number of participants selecting the four options, across the three market segments is given in the following table.

| Market Segments | P | Q | R | S | Total |
|---|---|---|---|---|---|
| Villages | 95 | 390 | 135 | 380 | 1000 |
| Towns | 210 | **220** | **220** | 350 | 1000 |
| Metros | 180 | 405 | 230 | 185 | 1000 |
| Total | **485** | **1015** | **585** | **915** | 3000 |

The two observations made by the brand manager, hold true only for the following four cases.

| Possible Cases | P | Q | R | S |
|---|---|---|---|---|
| **Case I** | Cream | Rejected All | Chilly | Mint |
| **Case II** | Chilly | Rejected All | Cream | Mint |
| **Case III** | Mint | Chilly | Rejected All | Cream |
| **Case IV** | Mint | Cream | Rejected All | Chilly |

**9.** 4 If the statement given in the problem is true, then the selection of option P, in the survey form, must indicate that the participant had liked the Mint flavour, the least. Accordingly, either Case III or Case IV could be true and the two flavours-(Chilly & Cream) must be indicated by the two options-(Q & S) but their exact order cannot be concluded. Further, selection of option R, in the survey form, indicated that the participant had rejected all the three flavours. Hence none of the options (1) or (2) or (3) can definitely be concluded but option (4) can definitely be concluded.

**10.** 3 If the statement given in the problem is true, then option P given in the survey form must indicate Cream flavour. Accordingly, only Case I is valid. Statement given in option (3) is definitely false as the minimum number belonged to the market segment, Towns.

**11.** 4 From the problem statement. We can conclude that option P in the survey form, indicates Mint flavour. Accordingly, options Q and S could indicate Chilly and Cream flavours. Option R indicated rejection of all the three flavours. Note that, in any of the given market segments, the number of participants who selected neither option P nor Q is the sum of the number of participants who selected either option R or options S. Each of the five answer options can be verified. Option (4) is correct.

**12.** 1 From each of the five given statements, we can make the following conclusions:

| Statement | Conclusion |
|---|---|
| I | R indicated rejection of all the flavours. |
| II | P indicated selection of Cream flavour. |
| III | S indicated selection of Chilly flavour. |
| IV | Either Q or R indicated selection of Cream Flavour. |
| V | P indicated selection of Mint flavour. |

Statements I, III, IV and V can simultaneously be true. Hence option (a) is the correct answer.

**Directions for examples 13 to 17:** Answer the questions based on the table given below.

The following table shows the business details of a company named ABC India Pvt. Ltd.

| Vertical | Category | Annual sales (in Rs.) | Margin | Number of employees | Annual salary per employee (in Rs.) |
|---|---|---|---|---|---|
| Software | Inhouse | 0.2 crore | 23 | 25 | 20000 |
| | Export | 1.5 crore | 47 | 15 | 100000 |
| Hardware | Inhouse | 0.4 crore | 31 | 40 | 15000 |
| | Export | 2 crore | 52 | 40 | 80000 |

Margin = $\frac{\text{Profit}}{\text{Sales}} \times 100$.

**13.** If the salary of each hardware inhouse employee is increased by 50%, what is the new margin percentage of the company? (All other factors remain the same)

(1) 21.5% (2) 27% (3) 35.59% (4) 45.9%

**14.** If the annual salary per employee of software inhouse employee is made equal to the annual salary per employee of hardware inhouse employees, what is the percentage increase in the software inhouse margin?

(1) 8.75% (2) 29.25% (3) 6.25% (4) 27.17%

**15.** If in each vertical category the annual sales increases by 15%, what is the total profit of the company? (The margin remains the same)

(1) Rs. 2.45 crore (2) Rs. 1.91 crore (3) Rs. 2.2 crore (4) Data insufficient

**16.** If the Software as well as Hardware exports of the company increases by 20% and the total inhouse business is closed then what is the over all change in the profit of the company? (The margin remains the same)

(1) 17.9 lacs (2) 35.8 lacs (3) 34.9 lacs (4) 17 lacs

**17.** The company plans to train the software inhouse employees and the training expenditure per employee will be Rs. 9200. What will be the new margin percentage in software inhouse division if the company goes with the training plan?

(1) 50% (2) 11.5% (3) 46% (4) Cannot be determined

**13.** 4 Net profit of company A in software inhouse = Rs. 0.046 crore, software export = Rs. 0.7 crore, hardware inhouse = Rs. 0.124 crore,hardware export = Rs. 1.04 crore.

$\therefore$ Total profit = Rs. 1.91 crore

Salary of hardware inhouse executives is increased by 50% that is by Rs. 7,500.

Increase in total salary is Rs. 7500 × 40= Rs. 0.03 crore

$\therefore$ New net margin = Rs. 1.88 crore

So, margin percentage $= \frac{1.88}{4.10} \times 100 = 45.9\%$

**14.** 4 Net decrease in cost = (20000 – 15000) × 25= Rs. 1.25 lakh
Earlier net profit = Rs. 4.6 lakh
New net profit = (Rs. 4.6 + Rs. 1.25)= Rs. 5.85 lakh

$$\left(\frac{\frac{5.85}{20}}{\frac{4.6}{20}}-1\right)\times 100=\frac{1.25}{4.6}\times 100=27.17\%$$

**15.** 3 Profit of company A in software inhouse = 23% of (115% of 0.2 crore) = Rs. 5.29 lacs
Profit of company A in software export = 47% of (115% of 1.5 crore) = Rs. 81.08 lacs
Profit of company A in hardware inhouse = 31% of (115% of 0.4 crore) = Rs. 14.26 lacs
Profit of company A in hardware export = 52% of (115% of 2 crore) = Rs. 119.6 lacs
Hence, the total profit = Rs. 220.23 lacs ≈ Rs. 2.2 crores

**16.** 1 Increase in profit = 47% of (20% of 1.5 crores) + 52% of (20% of 2 crore) = 0.141+ 0.208 = 0.349 crores = Rs. 34.9 lacs
Decrease in profit due to closing of inhouse business = 23% of 0.2 crore + 31% of 0.4 crore = (0.046 + 0.124) crore = 0.17 crore = Rs. 17 lacs.
Net increase in profit = 34.9 – 17 = Rs. 17.9 lacs.

**17.** 2 Before the training program, the profit of company A in software inhouse = Rs. 0.046 crores = 4.6 lacs
Now, profit = 4.6 lacs – (9200 × 25) = 2.3 lacs

So, the new margin percentage $=\frac{2.3}{20}\times 100=11.5\%$

**Directions for examples 18 to 20:** Answer the questions on the basis of the information given below.
The following table gives the details of the account statement of Raj's account in HDCF bank during the period January 2017 to April 2017. It is also known that the balance in the account as on December 31, 2016 was Rs 18000.

| Date | Details | Debit | Credit | Balance |
|---|---|---|---|---|
| 10-Jan | By Cash | NA | 12000 | 30000 |
| 30-Jan | By CHQ 456789 | NA | 15000 | 45000 |
| 31-Jan | To ATM Withdrawal | 15000 | NA | 30000 |
| 17-Feb | To CHQ 123456 | | NA | 5635 |
| 23-Feb | TO POS PUR | 1085 | NA | 4550 |
| 28-Feb | By Cash | NA | 16730 | 21280 |
| 11-Mar | To ECS | 6380 | NA | |
| 24-Mar | To Cash | 14000 | NA | |
| 31-Mar | By CHQ 127128 | NA | 66800 | 67800 |
| 23-Apr | By Cash | NA | 11922 | 79800 |
| 30-Apr | To IB TFR | 31716 | NA | 48084 |

The bank offers an interest of 0.5% on monthly basis on the Average Monthly Balance(AMB). The interest, the details of which is not shown in the given account statements, is credited in the account on the last day of each month, after the completion of all transactions for that day.

$$\text{Average Monthly Balance (AMB)} = \frac{\text{Sum of the balances at the end of each day of a month}}{\text{No. of days in the month}}$$

**18.** What was the total balance in the account at the end of April 30?

(1) Rs 48084 (2) Rs 48384 (3) Rs 48434 (4) Rs 48344

**19.** During the given period, what was the average monthly interest credited in Raj's account?

(1) Rs 663 (2) Rs 165.75 (3) Rs 331.50 (4) Rs 350

**20.** What was the amount of the cheque that was debited in Raj's account on 17th February?

(1) Rs 24365 (2) Rs 24635 (3) Rs 24500 (4) Rs 25500

**For examples 18 to 20:**

**1.** AMB in January $= \frac{18000 \times 9 + 30000 \times 20 + 45000 \times 1 + 30000 \times 1}{31}$ = Rs. 27,000

Interest for the month of January $= \frac{27000 \times 6 \times 1}{12 \times 100}$ = Rs. 135

Balance at the end of January = 30000 + 135 = Rs. 30,135

**2.** AMB in February $= \frac{30135 \times 16 + 5635 \times 6 + 4550 \times 5 + 21280 \times 1}{28}$ = Rs. 20,000

Interest for the month of February $= \frac{20000 \times 6 \times 1}{12 \times 100}$ = Rs. 100

Balance at the end of February = 21280 + 100 = Rs. 21,380

**3.** AMB in March $= \frac{21380 \times 10 + 15000 \times 13 + 1000 \times 7 + 67800 \times 1}{31}$ = Rs. 15,600

Interest for the month of March $= \frac{15600 \times 6 \times 1}{12 \times 100}$ = Rs. 78

Balance at the end of March = 67800 + 78 = Rs. 67,878

**4.** AMB in April $= \frac{67878 \times 22 + 79800 \times 7 + 48084 \times 1}{30}$ = Rs. 70,000

Interest for the month of April $= \frac{70000 \times 6 \times 1}{12 \times 100}$ = Rs. 350

Balance at the end of April = 48084 + 350 = Rs. 48,434

**18.** 3 Balance at the end of April 2017 is Rs. 48,434.

**19.** 2 Total interest earned during the given period = 135 + 100 + 78 + 350 = Rs. 663

Average Interest earned $= \frac{663}{4}$ = Rs. 165.75.

**20.** 3 Cheque amount deducted on 17th February = 30135 – 5635 = Rs 24,500.

# PRACTICE EXERCISE – 1

**Directions for questions 1 to 3:** Answer the questions on the basis of the information given below.
The following table shows data related to equity shares issued by five public sector companies on July 27, 2017.

| Company | Number of equity shares (crores) | Current market share price (Rs.) | Percentage of equity shares held by the government |
|---|---|---|---|
| BEL | 8 | 60 | 75% |
| BML | 3.64 | 15 | 60% |
| BHL | 24.48 | 150 | 62.5% |
| BPL | 30 | 175 | 66.7% |
| BCL | 1.515 | 350 | 80.0% |

**1.** If the government disinvested 20% of its stake in BEL and 25% in BML at the given market prices, the amount of revenue generated by the government through the disinvestment was.
(1) Rs. 80.19 crore (2) Rs. 96.55 crore (3) Rs. 72 crore (4) Rs. 109.65 crore

**2.** The government disinvested its entire stake in BPL at a price of Rs. 125 per share. What would have been the additional revenue generated by the government had it done the given disinvestment at the given market price?
(1) Rs. 1,800.4 crore (2) Rs. 1,000.5 crore (3) Rs. 500.4 crore (4) Rs. 500.6 crore

**3.** If the share price of BCL fell to Rs. 300 on July 28, 2017, then what was the decline in the total value of BCL's shares held by the government over that of the previous day?
(1) Rs. 50.6 crore (2) Rs. 55.6 crore (3) Rs. 60.6 crore (4) Rs. 65.6 crore

**Directions for questions 4 to 6:** Answer the questions on the basis of the information given below.
Following table shows the number of movies released in Jollywood as on August 15, 2017.

| Name of genre | Action | Romance | Drama | Patriotic | Thriller |
|---|---|---|---|---|---|
| Total number of movies | 192 | 250 | 300 | 77 | 216 |

The following table gives data related to hit and flop status of Jollywood movies, released during the given period, including that of a Jollywood star named STS.

| Name of genre | Action | Romance | Drama | Patriotic | Thriller |
|---|---|---|---|---|---|
| Hit movies as a percentage of total number of movies | 37.5 | 36 | 33.33 | 28.56 | 44.44 |
| Hit movies by STS as a percentage of total number of movies by STS | 50 | 60 | 16.66 | 50 | 66.66 |
| Flop movies by STS as a percentage of total number of flop movies | 10 | 6.25 | 12.5 | 20 | 5 |

Additional information with reference to the two tables given above is as follows:
– Every movie that releases in Jollywood belongs to exactly one of the five genres, Action, Romance, Drama, Patriotic and Thriller.
– Every movie that releases in Jollywood falls in exactly one of the two categories, Hit and Flop.

**4.** The total number of STS's hit movies, during the given period, across the three genres Drama, Patriotic and Thriller put together was
(1) 28 (2) 70 (3) 32 (4) Cannot be determined

**5.** What percentage of the total movies released during the given period across the five genres were flop movies?
(1) 62.89 (2) 61.72 (3) 63.28 (4) 64.19

**6.** For how many genres, was the number of STS's hit movies at least 50% of his flop movies?
(1) 1 (2) 2 (3) 3 (4) 4

**Directions for questions 7 to 9:** Answer the questions on the basis of the information given below.

Chintamani, who is a renowned investor, was looking at the investments that he had made a year ago. He had invested in 6 companies belonging to 3 sectors – Telecom, Insurance and Retail – with two companies in each sector. The following table shows the share prices of the 6 companies that Chintamani bought on June 5, 2016 in the years 2016 and 2017 on the same date. It is also known that he bought shares of each company in a multiple of 10.

| Company | Share prices as on 5th June 2016 (Rs.) | Share prices as on 5th June 2017 (Rs.) |
|---|---|---|
| A | 150 | 230 |
| B | 500 | 575 |
| C | 200 | 320 |
| D | 400 | 440 |
| E | 800 | 900 |
| F | 175 | 245 |

**7.** If the shares that witnessed the top two absolute changes in their prices belonged to Telecom sector, while the shares that witnessed the bottom two absolute changes in their share prices belonged to Insurance sector, what was the approximate percentage change in the combined share price value of the two Retail companies during the given period?

(1) 20% (2) 24% (3) 30% (4) 40%

**8.** If Chintamani purchased a total of 60 shares belonging to 4 out of the six companies, then the maximum possible percentage return that he could realise on these 60 shares during the given period was

(1) 41% (2) 32% (3) 36% (4) 37%

**9.** If shares that witnessed the highest and lowest percentage change in their prices belonged to Telecom sector, then what was the percentage change in the combined share price value of the two Telecom companies during the given period?

(1) 26.67% (2) 35.66% (3) 40.33% (4) 45.33%

**Directions for questions 10 to 13:** Answer the questions on the basis of the information given below.

The table given below shows the production of some agricultural crops in a country named Indiana in the years 2010-11 and 2011-12.

| Crop | Targeted production for 2011-12 (in MT) | Production for 2011-12 (in MT) | % increase in production over 2010-11 |
|---|---|---|---|
| Food grains | 162.7 | 160.4 | 25 |
| Oil seeds | 18.9 | 16.2 | 18 |
| Sugarcane | 20.5 | 22.5 | 35 |
| Cotton | 14.7 | 18.9 | 32 |
| Jute | 12.3 | 14.8 | 16 |

**10.** The production of Food grain (in MT) in 2010-11 was nearly

(1) 130 (2) 128 (3) 134 (4) 135

**11.** The crop whose production in 2011-12 showed the maximum deviation from the targeted production, witnessed the percentage deviation of

(1) 31.4 (2) 30.2 (3) 19.8 (4) 28.6

**12.** If there was an increase of 4.5 MT in the production of Sugarcane in 2012-13 over that of the previous year, what was the simple annual growth rate in the production of Sugarcane from 2010-11 to 2012-13?

(1) 25% (2) 26% (3) 31% (4) 28%

**13.** If Oil seeds production in 2019-20 was 24.4 MT, what was the simple annual growth rate in the production of Oil Seed from 2011-12 to 2019-20?

(1) 6.3 (2) 6.9 (3) 7.2 (4) 5.7

**Directions for questions 14 to 17:** Answer the questions on the basis of the information given below.

Fortune1000 is a list of top thousand companies in America ranked in the descending order of their annual revenues – rank 1 for highest revenue, rank 2 for the second highest revenue and so on. The following table shows all the companies in the state of Virginia (a state in America) that belonged to the Fortune1000-2013 along with their rank, revenues and the city in which they are based.

| Company | Rank | Revenues ($ millions) | City |
|---|---|---|---|
| Advance Auto Parts | 478 | 4,616.50 | Roanoke |
| Amerigroup | 676 | 2,835.10 | Virginia Beach |
| Brink's | 641 | 3,067.60 | Richmond |
| CACI | 932 | 1,755.30 | Arlington |
| Circuit City Stores | 215 | 11,597.70 | Richmond |
| Dollar Tree Stores | 532 | 3,969.40 | Chesapeake |
| Dominion Resources | 140 | 16,524.00 | Richmond |
| DynCorp | 867 | 1,967.00 | Falls Church |
| Freddie Mac | 50 | 44,002.00 | McLean |
| Gannett | 302 | 8,033.40 | McLean |
| General Dynamics | 92 | 24,212.00 | Falls Church |
| Genworth Financial | 227 | 11,029.00 | Richmond |
| LandAmerica Financial | 522 | 4,015.90 | Glen Allen |
| Markel | 739 | 2,519.00 | Glen Allen |
| NVR | 371 | 6,156.80 | Reston |
| Owens & Minor | 418 | 5,533.70 | Mechanicsville |
| SLM | 284 | 8,751.20 | Reston |
| Smithfield Foods | 217 | 11,506.80 | Smithfield |
| Sprint Nextel | 53 | 43,531.00 | Reston |
| Universal | 573 | 3,511.30 | Richmond |

**14.** The revenue of how many companies in Virginia was greater than that of Universal?

(1) 14 (2) 15 (3) 16 (4) 17

**15.** If the companies given in the table were to be ranked for the state of Virginia i.e. rank 1 for the highest revenue in the state, then which company would hold rank 10?

(1) Gannett (2) SLM (3) Owens & Minor (4) NVR

**16.** If the companies given in the table were to be ranked for each city i.e. rank 1 for the highest revenue in that city, which of the following two companies would hold the same rank?

(1) DynCorp and Markel

(2) Gannett and Genworth Financial

(3) Brink's and Amerigroup

(4) Dollar Tree Stores and SLM

**17.** What was the Fortune1000-2013 rank of US Airways Group, a company from some other state in America, with the annual revenue of $ 11, 557 million?

(1) 84 (2) 216 (3) 880 (4) Cannot be determined

**Directions for questions 18 to 21:** Answer the questions on the basis of the information given below.

In a flower shop, eight different varieties of flowers namely D, E, F, G, H, I, J and K are sold. The following table provides the information about the number of flowers of each variety available in the shop at the beginning of day on five different days – Day 1 through Day 5.

| Flowers | day 1 | day 2 | day 3 | day 4 | day 5 |
|---|---|---|---|---|---|
| **D** | 241 | 204 | 208 | 191 | 186 |
| **E** | 189 | 199 | 261 | 225 | 210 |
| **F** | 207 | 276 | 179 | 184 | 211 |
| **G** | 213 | 182 | 228 | 216 | 192 |
| **H** | 185 | 197 | 241 | 219 | 235 |
| **I** | 214 | 254 | 233 | 191 | 182 |
| **J** | 183 | 211 | 239 | 245 | 190 |
| **K** | 227 | 194 | 178 | 257 | 220 |

**18.** On day 4, all the flowers of varieties G, H, I, J and K were found to be damaged. A magician generated new flowers equal in number to the total number of damaged flowers. The new flowers generated by the magician were of varieties D, E and F and the number of new flowers of each variety generated by the magician is the same. Find the total number of flowers of variety D available in the flower shop on day 4.

(1) 567 (2) 371

(3) 376 (4) 382

**19.** If T denotes fifty percent of the total number of available flowers of varieties D and I on day 1, day 2 and day 3 taken together, W denotes eighty percent of the total number of available flowers of varieties D and I on day 4 and day 5 taken together and M denotes twenty percent of the total number of available flowers of varieties D and I on day 4 and day 5 taken together, then find the value of (T – M + 2W).

(1) 1726 (2) 1727

(3) 1728 (4) 1729

**20.** One "Garland" consists of 4, 6 and 3 flowers of varieties F, G and H respectively and one "Bouquet" consists of 6 flowers such that the flowers in any bouquet is either of variety F only or G only or H only. If the maximum possible number of Garlands was made at the end of day 5 using all the available flowers from day 1 to day 5, and the remaining flowers were used to make maximum possible number of bouquets, then find the total number of so formed garlands and bouquets put together over the period of five days.

(1) 286 (2) 313

(3) 265 (4) 327

**21.** The total number of flowers of varieties I, J and K formed what percentage of the total number of flowers of all varieties put together over the given period?

(1) 31.24% (2) 37.87%

(3) 39.33% (4) 35.67%

**Directions for questions 22 to 24:** Answer the questions on the basis of the information given below.

Larry has a huge collection of shirts. The shirts with him are of four brands namely Caterpillar, Diesel, Lacoste and Dockers. The color of the shirts with him is either black or white. Out of the shirts with him, Larry has bought only few of them, whereas the rest have been gifted to him by six of his friends namely Anjana, Ravneet, Urvashi, Heena, Simar and Sarah. Larry does not know the exact number of shirts gifted to him but he knows that the number of white shirts of each brand gifted to him by each of his mentioned friends is at least 3 and at most 18. Further, the number of black shirts of each brand gifted to him by each of his mentioned friends is at least 7 and at most 25.

Larry asked his mother to help him determine the number of shirts gifted to him by each of his mentioned friends. In turn Larry's mother provided him with the information listed in the table given below.

| | Number of Shirts | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Caterpillar | | Diesel | | Lacoste | | Dockers | |
| | Black | White | Black | White | Black | White | Black | White |
| **Anjana** | > 9 | < 4 | > 17 | > 8 | < 11 | < 7 | < 23 | > 10 |
| **Ravneet** | > 18 | < 6 | < 24 | < 9 | > 10 | > 12 | > 14 | < 10 |
| **Urvashi** | < 21 | > 10 | > 14 | < 7 | < 19 | > 9 | > 10 | < 12 |
| **Heena** | > 15 | < 9 | > 19 | < 6 | < 21 | < 13 | < 18 | < 5 |
| **Simar** | > 9 | < 4 | < 19 | > 14 | < 8 | < 5 | > 12 | > 12 |
| **Sarah** | < 15 | < 9 | > 20 | < 7 | < 8 | > 14 | > 23 | < 5 |

**22.** Out of the white shirts gifted to Larry by Ravneet, Heena and Sarah the number of white shirts of brand Caterpillar is definitely less than the number of white shirts of brand(s)

(1) Diesel (2) Dockers (3) Lacoste (4) Both (2) and (3)

**23.** If the total number of shirts with Larry is 750 and the total number of shirts bought by him is the same as the total number of shirts gifted to him by Anjana, then the total number of shirts with Larry that are neither bought by him nor gifted to him by Anjana is at least

(1) 501 (2) 499 (3) 495 (4) 496

**24.** If the total number of shirts of each of the mentioned brands gifted to Larry by Urvashi and Simar is the same, then which of the following can be the total number of shirts gifted to Larry by Urvashi and Simar put together?

(1) 184 (2) 192 (3) 196 (4) 158

**Directions for questions 25 to 28:** Answer the questions on the basis of the information given below.

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| **A** | 1 | 3 | 5 | 2 | 5 | 3 |
| **B** | 3 | 1 | 2 | 4 | 3 | 5 |
| **C** | 5 | 2 | 1 | 5 | 4 | 3 |
| **D** | 2 | 4 | 5 | 1 | 1 | 2 |
| **E** | 5 | 3 | 4 | 1 | 1 | 2 |
| **F** | 3 | 5 | 3 | 2 | 2 | 1 |

Among 6 variables A, B, C, D, E and F, given in the table, only two kinds of arithmetic operations named 'Pontiplication' (denoted by '×') and 'Civision' (denoted by '÷') are allowed. From the table given above, we can find the result of 'Pontiplication' or 'Civision' between any two variables by the following rules:

**Rule I:** 'Pontiplication' of B and D denoted by BD is the product of the first number in the row of B and the number common to the row of B and the column of D.

For example, BD = B × D = 3 × 4 = 12.

**Rule II:** Similarly the Civision of B and D denoted by $\frac{B}{D}$, is the ratio of the first number in the row of B to the number common to the row of B and the column of D.

For example, $\frac{B}{D} = B \div D = 3 \div 4 = 0.75$.

**Rule III:** Neither 'Pontiplication' nor 'Civision' is defined between the same variable. For example, (B × B) or (B ¸ B) is not defined.

In the following questions, X and Y denote two distinct variables out of A, B, C, D, E and F.

**25.** The minimum possible value of (2XY – YX) is

(1) 0 (2) –5 (3) –10 (4) –15

**26.** The sum of all the possible values of XY is

(1) 284 (2) 300 (3) 312 (4) 328

**27.** The number of possible cases in which the value of $X \div Y$ is not less 1 is

(1) 18 (2) 20 (3) 22 (4) 24

**28.** If the possible values of $\left[XY + YX - \frac{X}{Y}\right]$, where Y divides X completely, are arranged in decreasing order, which is the second highest distinct value?

(1) 11 (2) 15 (3) 23 (4) 29

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

The following chart shows the results of an experiment conducted to check the presence of Ca, Mg and P ions in 6 different brands of toothpastes. The following table shows the quantity used for conducting the experiment, amount of Ca, Mg and P ions present, and the recommended quantity of toothpaste to be used per brushing for each of the six types of toothpaste.

| Toothpaste | Quantity used (in grams) | Ca ions (in mg) | Mg ions (in mg) | P ions (in mg) | Recommended use per brushing (in grams) |
|---|---|---|---|---|---|
| Colgate | 200 | 24 | 8 | 32 | 1.25 |
| Pepsodent | 100 | 10 | 6 | 14 | 1.00 |
| Babool | 300 | 27 | 18 | 40 | 1.60 |
| Promise | 200 | 22 | 11 | 27 | 1.40 |
| Sensoform | 100 | 11 | 5 | 13 | 0.80 |
| Close-up | 200 | 25 | 9 | 24 | 1.10 |

Based on the experiment results, toothpastes were categorised as follows:

| | |
|---|---|
| Excellent | If percentage of Ca ions is the highest and percentage of Mg ions is the least as compared to other toothpastes |
| Good | If percentage of Ca ions is the highest and percentage of P ions is the least as compared to other toothpastes |
| Average | If percentage of P ions is the highest and percentage of Mg ions is the least as compared to other toothpastes |
| Poor | If percentage of Mg ions is the highest and percentage of Ca ions is the least as compared to other toothpastes |

It is known that 1 grams = 1000 mg.

**29.** If Colgate is taken as reference, then what would be the percentage saving in usage of Sensoform per month if a person uses it as recommended? (Assume that the number of brushings per month with all the pastes is same.)

(1) 36% (2) 66.6% (3) 40% (4) None of these

**30.** In how many of the given toothpastes is the percentage of Ca ions more than that of Mg ions and P ions taken together?

(1) 0 (2) 1 (3) 3 (4) 4

**Directions for questions 31 to 34:** Answer the questions on the basis of the information given below.

The table given below shows the data related to the average marks scored by boys and girls in primary and secondary classes of a school during the period 2011-2017. It also gives the average marks of all the boys and girls, studying in primary and secondary classes for the same period.

| Years | Primary | | Secondary | | Total | |
|---|---|---|---|---|---|---|
| | Boys | Girls | Boys | Girls | Boys | Girls |
| 2011 | 40 | 54 | 54 | 62 | 48 | 58 |
| 2012 | 72 | 80 | 60 | 68 | 64 | 72 |
| 2013 | 60 | 76 | 68 | 70 | 62 | 74 |
| 2014 | 94 | 96 | 90 | 98 | 92 | 97 |
| 2015 | 58 | 60 | 76 | 80 | 64 | 62 |
| 2016 | 50 | 60 | 80 | 90 | 70 | 76 |
| 2017 | 64 | 80 | 76 | 90 | 70 | 84 |

**31.** In 2011, which of the following could be the total number of boys studying in either primary or secondary classes of the school?

(1) 14 (2) 22

(3) 17 (4) 24

**32.** Which of the following statements is definitely true?

(1) The total number of boys in the years 2012 and 2013, put together, was greater than the total number of girls in the years 2013 and 2014, put together.

(2) The total number of boys in all the given years, put together, was greater than the total number of girls in the years 2012 and 2013, put together.

(3) The total number of students in primary classes in the years 2011 and 2012, put together, was lesser than the total number of students in secondary classes in the years 2011 and 2012, put together.

(4) None of these.

**33.** If the average marks score by all the students in the years 2015 and 2016 was 63 and 72 respectively, and the number of boys studying in secondary classes in the year 2015 was equal to the number of boys studying in the primary classes in the year 2016, then which of the following statements is definitely true?

(1) The total number of students in 2015 was equal to that in 2016.

(2) The total number of students in 2015 was 40% more than the total number of students in 2016.

(3) The total number of students in 2015 was 20% less than the total number of students in 2016.

(4) The total number of students in 2015 was 33.33% more than the total number of students in 2016.

**34.** If the average marks of all the students in 2017 was 80 and the number of boys in secondary classes was 500, then the total number of students in 2017 was

(1) 4560 (2) 3620

(3) 4200 (4) 3500

**Directions for questions 35 to 38:** Answer the questions on the basis of the information given below:

The following table gives details related to the number of runs scored by four players – Kemp, Kallis, Klusener and Kevin – in four different tournaments – Standard Bank Series, Afro-Asia Cup, Natwest Series and Benson & Hedges Series. However, the names of the players are disguised as P, Q, R, S and the names of the tournaments are disguised as A, B, C, D, not necessarily in the same order.

| | P | Q | R | S |
|---|---|---|---|---|
| **A** | 225 | 300 | 250 | 350 |
| **B** | 250 | 325 | 275 | 400 |
| **C** | 275 | 250 | 300 | 125 |
| **D** | 300 | 275 | 200 | 200 |

It is also known that:

- The total number of runs scored by the 4 players, put together, in Afro-Asia Cup was greater than that in the other three tournaments.
- The absolute difference between the total runs scored in Afro-Asia Cup and Benson & Hedges Series and the total runs scored in Natwest Series and Standard Bank Series by the 4 players was 100.
- When the total runs scored scored by individual players in the four tournaments, put together, are arranged in descending order (from top to bottom), Kevin and Kemp occupy the top two positions.

**35.** What can be said regarding the following two statements?

**Statement X:** Kallis's 2nd highest score was in Natwest Series.

**Statement Y:** The absolute difference between the highest individual scores in Afro-Asia Cup and Standard Bank Series was 100.

(1) If Statement X is true, then Statement Y is necessarily true.
(2) Statement X is false and Statement Y is true.
(3) Statement X is false but Statement Y may be true.
(4) Both Statements X and Y are necessarily false.

**36.** What can be said regarding the following two statements?

**Statement X:** Klusener's highest score was in Natwest Series.

**Statement Y:** Kallis's second lowest score was in Standard Bank Series.

(1) If one of the statements is false, then the other is definitely false.
(2) If Statement X is true, then Statement Y is necessarily false.
(3) If Statement Y is true, then Statement X is necessarily false.
(4) Both Statements X and Y are true independently.

**37.** What can be said regarding the following statements?

**Statement X:** Kevin's lowest score was in Benson & Hedges series.

**Statement Y:** Kemp's highest score was in Afro-Asia Cup.

(1) Statement X may be false but Statement Y is necessarily true.
(2) Statement Y may be false but Statement X is necessarily true.
(3) Both Statement X and Statement Y are necessarily true.
(4) Both Statements X and Y may be false together.

**38.** What can be said regarding the following two statements?

**Statement X:** The total runs scored by Kevin in the four tournaments, put together, was highest.

**Statement Y:** The number of runs scored by Kemp in the Natwest Series was highest.

(1) If statement X is true, then statement Y is necessarily true.
(2) If statement Y is true, then statement X is necessarily false.
(3) If statement Y is true, then statement X is necessarily true.
(4) If statement Y is false, then statement X is necessarily true.

**Directions for questions 39 to 42:** Answer the questions on the basis of the information given below.

Five companies were vying with each other in their bid to take-over Mittal Steel, the largest steel-maker of the world. The companies initially offered a price per share of Mittal Steel which is termed as 'offer price'. The offer prices of the respective companies as on 1st February 2017 morning was as follows:

| Sl.No | Name of the Company | Offer price in Rs. as on 1st Feb 2017 |
|---|---|---|
| 1 | Tata Steel | 594 |
| 2 | JK Steel | 592 |
| 3 | Essar Steel | 591 |
| 4 | Modi Steel | 596 |
| 5 | Nippon Steel | 598 |

The bidding process continued for six days from 1st to 6th February. During this period, all the companies followed a simple rule for revising their offer prices.

I. If the closing price of the share of a particular company on Bombay Stock Exchange (BSE) on any day was higher than the previous day's closing price, the offer price was revised upwards the next day by Rupee 1/- per share.

II. If the closing price of the share of a particular company on BSE on any day was lower than the previous day's closing price, the offer price was revised downwards by Rs. 2 per share the next day.

III. Each day, the offer prices of the companies were revised starting with the first revision on 2nd February and the final revision on 6th February.

The Table below shows the closing share prices on BSE for the 5 companies mentioned. Data for the closing price of Tata Steel on 3rd February and of Modi Steel on 2nd February are not available.

| Sl.No | Name of the Company | Closing Share Price in Rs. as on | | | | | |
|---|---|---|---|---|---|---|---|
| | | 31/01/2016 | 1/2/2017 | 2/2/2017 | 3/2/2017 | 4/2/2017 | 5/2/2017 |
| 1 | Tata Steel | 519 | 520 | 527.5 | | 527 | 522 |
| 2 | JK Steel | 703 | 700 | 690 | 695 | 700 | 705 |
| 3 | Essar Steel | 248 | 250 | 253 | 255 | 260 | 265 |
| 4 | Modi Steel | 858 | | 865 | 867 | 870 | 867 |
| 5 | Nippon Steel | 154 | 150 | 154 | 156 | 158 | 153 |

Following additional information is available:

A. For Tata Steel, the number of days on which the share price increased was one more than the number of days on which the share price decreased, during the given period. Also, the share price of Tata Steel neither decreaed nor increased on two consecutive days.

B. The share price of Modi Steel increased on 4 days and decreased on 1 day, during the given period.

**39.** Mittal Steel was taken over by the company that offered the maximum offer price as on 6th February. Identify the company that was successful in taking over Mittal Steel.

(1) Tata Steel

(2) Modi Steel

(3) Essar Steel

(4) Nippon Steel

**40.** Which group of companies had the same absolute change in the offer price on 6th February with respect to 1st February?

(1) Tata, JK and Nippon Steel

(2) Tata and JK Steel

(3) JK and Nippon Steel

(4) Tata and Nippon Steel

**41.** Had the bidding concluded on 5th February, and companies with the top two offer prices not showed interest in taking over the company, which company could have taken over Mittal Steel?

(1) Modi Steel

(2) JK Steel

(3) There will be a tie between Tata Steel and Essar Steel

(4) Tata Steel

**42.** Only those companies with an offer price of more than Rs. 595 on 4th February were considered for further participation. How many companies were not eligible for making bid on 6th February?

(1) 3 (2) 4 (3) 1 (4) 2

**Directions for questions 43 to 46:** Answer the questions on the basis of the information given below.

In a city there are ten Police patrolling jeeps for providing security to the residents. Each patrolling jeep has three policemen viz. one Inspector, one Constable and one Driver. Each patrolling jeep has a wireless system to make calls to other patrolling jeeps. Codes are required to activate the wireless system which are different for Inspectors, Constables and Drivers. Four patrolling jeeps receive every call made by an Inspector, two patrolling jeeps receive every call made by a Constable and one patrolling jeep receives every call made by a Driver. The patrolling jeeps can make or receive calls to / from other patrolling jeeps only. The following table provides information about the number of received and dialed calls by each patrolling jeep at the end of a particular day.

| Police Patrolling jeep No. | No. of Received Calls | No. of Dialed Calls |
|---|---|---|
| **1** | 6 | 5 |
| **2** | 15 | 3 |
| **3** | 7 | 2 |
| **4** | 9 | 6 |
| **5** | 6 | 1 |
| **6** | 8 | 3 |
| **7** | 10 | 2 |
| **8** | 9 | 1 |
| **9** | 7 | 4 |
| **10** | 5 | 3 |

**43.** If Police Patrolling jeep No. 2 had received calls from only three Police Patrolling jeeps, then what could be the lowest possible number of Police Patrolling jeeps from which Police Patrolling jeep No. 7 received calls?

(1) 6 (2) 4 (3) 3 (4) 2

**44.** What could be the maximum possible number of calls that can be made by the Constables?

(1) 19 (2) 16 (3) 13 (4) 10

**45.** If the total number of calls made by all the Inspectors was not less than the total number of calls made by all the Constables and the total number of calls made by all Constables was not less than the total number of calls made by the all the Drivers, then what was the minimum number of calls that could have been made by the Drivers?

(1) 6 (2) 4 (3) 2 (4) 8

**46.** If the total number of calls made by all the Inspectors was not less than the total number of calls made by all the Constables and the total number of calls made by all Constables was not less than the total number of calls made by the all the Drivers, then what was the maximum number of calls that could have been made by the Drivers?

(1) 10 (2) 8 (3) 6 (4) 4

**Directions for questions 47 to 49:** Answer the questions on the basis of the information given below.

The table given below shows the closing prices (in Rs.) of the stocks of six Indian banks viz. Axis Bank, BOB, ICICI Bank, HDFC, PNB and SBI, on the days on which trading happened on a stock exchange from April 16, 2017 to May 15, 2017.

| Bank / Date | AXIS Bank | BOB | ICICI Bank | HDFC | PNB | SBI |
|---|---|---|---|---|---|---|
| 16-Apr-17 | 1363 | 681 | 1079 | 663 | 740 | 2183 |
| 17-Apr-17 | 1377 | 676 | 1099 | 660 | 748 | 2245 |
| 18-Apr-17 | 1429 | 688 | 1123 | 674 | 767 | 2300 |
| 22-Apr-17 | 1441 | 699 | 1148 | 698 | 781 | 2327 |
| 23-Apr-17 | 1445 | 693 | 1161 | 689 | 779 | 2288 |
| 25-Apr-17 | 1503 | 709 | 1177 | 690 | 786 | 2335 |
| 26-Apr-17 | 1486 | 699 | 1145 | 689 | 772 | 2288 |
| 29-Apr-17 | 1475 | 699 | 1153 | 695 | 785 | 2274 |
| 30-Apr-17 | 1493 | 699 | 1164 | 682 | 768 | 2264 |
| 2-May-17 | 1516 | 712 | 1172 | 693 | 769 | 2299 |
| 3-May-17 | 1475 | 699 | 1130 | 681 | 744 | 2214 |
| 6-May-17 | 1460 | 700 | 1143 | 676 | 739 | 2226 |
| 7-May-17 | 1504 | 705 | 1164 | 688 | 748 | 2257 |
| 8-May-17 | 1490 | 692 | 1158 | 697 | 749 | 2255 |
| 9-May-17 | 1454 | 700 | 1153 | 690 | 783 | 2291 |
| 10-May-17 | 1470 | 703 | 1165 | 703 | 771 | 2294 |
| 11-May-17 | 1472 | 703 | 1168 | 703 | 773 | 2306 |
| 13-May-17 | 1452 | 690 | 1149 | 693 | 758 | 2278 |
| 14-May-17 | 1468 | 704 | 1147 | 689 | 766 | 2293 |
| 15-May-17 | 1509 | 728 | 1191 | 715 | 822 | 2383 |

**47.** Which of the six banks recorded the maximum increase in its closing stock price on a day over any of the preceding days during the given period?

(1) SBI

(2) HDFC

(3) ICICI

(4) AXIS Bank

**48.** On which date did the closing stock price of ICICI Bank record the maximum increase over that of the previous day during the given period?

(1) 18$^{th}$ April

(2) 15$^{th}$ May

(3) 23$^{rd}$ April

(4) 6$^{th}$ May

**49.** Which of the six banks recorded the maximum percentage increase in its closing stock price over the given period?

(1) PNB

(2) AXIS Bank

(3) ICICI

(4) BOB

**Directions for questions 50 to 52:** 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 2016-17.

| 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 |

**50.** 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 2016-17?

(1) 13x

(2) 7x

(3) 14x

(4) 6.5x

**51.** 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 2016-17 was

(1) 0

(2) 1

(3) 2

(4) None of these

**52.** 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 2016-17?

(1) 0

(2) 1.5

(3) 0.5

(4) Cannot be determined

**Directions for questions 53 to 55:** Answer the questions on the basis of the information given below.

The table below gives information regarding the number of candidates who appeared in CEE, an exam conducted for selection of Probationary Officers in 10 banks, and the number of candidates who were finally selected for the post by the banks. The exam was conducted in 2014 for the first time. A candidate could not reappear for the exam during the given period after getting selected once. It is also known that no two banks ever selected the same candidate for the post in a year.

| | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|
| Total | 559232 | 593456 | 642965 | 691584 |
| AB | 112 | 124 | 104 | 119 |
| IOB | 76 | 84 | 92 | 97 |
| OBC | 345 | 496 | 221 | 245 |
| BB | 239 | 117 | 179 | 381 |
| PNB | 715 | 225 | 468 | 159 |
| BOI | 224 | 72 | 802 | 415 |
| PSB | 1092 | 948 | 732 | 645 |
| BOM | 510 | 713 | 196 | 240 |
| SB | 468 | 749 | 217 | 69 |
| CB | 698 | 1534 | 1149 | 1358 |

**53.** The number of candidates who appeared at least two times for the exam during the given period cannot be more than

(1) 541803 (2) 1236421 (3) 752863 (4) 1193558

**54.** If a candidate kept on appearing for the exam till he/she was selected by one of the banks, how many candidates appeared in all the years during the given period?

(1) 541803 (2) 554753 (3) 531803 (4) Cannot be determined

**55.** How many banks selected at least 0.05% of the appearing candidates each year during the given period?

(1) 0 (2) 1 (3) 2 (4) 3

**Directions for questions 56 to 59:** Answer the questions on the basis of the information given below.

The table given below shows some data regarding the production and per head consumption of wheat and rice for six farming families in a village named Hoshiarpur in the year 2017.

Surplus = Production – Consumption

| Family | Number of members | Wheat Produced (in kg) | Rice Produced (in kg) | Per head consumption of wheat (in kg) | Per head consumption of rice (in kg) |
|---|---|---|---|---|---|
| **Sharma's** | 6 | 600 | 520 | 91.2 | 83.2 |
| **Sen's** | 4 | 440 | 260 | 100.8 | 60 |
| **Srivastava's** | 7 | 800 | 560 | 108.4 | 78.4 |
| **Sehgal's** | 8 | 600 | 640 | 74.4 | 75.2 |
| **Srinivasan's** | 5 | 480 | 500 | 80 | 96.8 |
| **Suri's** | 7 | 520 | 460 | 63.2 | 64 |

**56.** For how many families was the surplus of Wheat and Rice together greater than 73.5 kg?

(1) 1 (2) 2 (3) 0 (4) 3

**57.** A relative of Sehgal's family joined it at the beginning of the year 2017 and stayed till the end of the year. If the amount of wheat consumed by the relative was 68 kg, by what amount must the family have reduced its per head consumption of wheat to meet the requirement with the produced quantity only?

(1) 7.10 kg (2) 7.43 kg (3) 7.90 kg (4) None of these

**58.** What was the total combined surplus of wheat and rice of all the families put together at the end of the year?

(1) 296 kg (2) 404.8 kg (3) 411.6 kg (4) None of these

**59.** Price of rice and wheat are Rs. 20 and Rs. 10 per kg respectively. How many families earn more amount by selling the surplus of rice then that by the selling the surplus of wheat at the end of the year?

(1) 1 (2) 2 (3) 3 (4) 4

**Directions for questions 60 to 63:** Answer the questions on the basis of the information given below.

The total electricity production of five thermal power plants in India in year 2016-17 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)

Profitability = $\left(\frac{\text{Revenue} - \text{Cost}}{\text{Cost}}\right) \times 100\%$

**60.** 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?

(1) 91.92% (2) 85.5% (3) 77.73% (4) 90%

**61.** Which of the following represents the decreasing order of units sold by the given 5 power plants?

(1) E > C > D > A > B (2) C > E > A > D > B (3) E > C > A > D > B (4) C > A > E > B > D

**62.** Which power plant had the third highest profitability?

(1) A (2) C (3) D (4) B

**63.** Which of the following statements is true?

(1) The power plant with the lowest percentage capacity utilization sold minimum number of units.

(2) The power plant with the second highest per unit selling price sold minimum number of units.

(3) The power plant B had the second lowest capacity.

(4) The total capacity of E was more than 10,000 MW units.

**Directions for questions 64 to 67:** Answer the questions on the basis of the information given below.

The BCCI has devised a grade system for cricket players. The players will be placed in four grades, I to IV. The more the points, the better the grade. Grades are assigned based on points, awarded on the basis of performance considering certain parameters. The following information gives relation between points and grades:

A player with points more than 15000 is assigned Grade I.

A Player with points between 10001 to 15000, both inclusive, is assigned Grade II.

A Player with points between 5000 to 10000, both inclusive, is assigned Grade III.

A Player with points less than 5000 is assigned Grade IV.

The following table gives partial information regarding the parameters that are taken into account for awarding points for a few Indian players. Blank cells indicate missing data.

| Player | Runs | Wickets | Catches | Centuries | 5 wicket-haul |
|---|---|---|---|---|---|
| Ganguly | 10000 | 50 | | | |
| Tendulkar | | 80 | 80 | 25 | 5 |
| Sehwag | | 40 | 50 | 10 | 4 |
| Laxman | 3000 | 0 | 60 | | |
| Dravid | 8000 | 0 | | 12 | |
| Zaheer | 1000 | | 50 | | 8 |
| Kumble | 1500 | 300 | 75 | 0 | 14 |

For the grading system,

1 run = 1 point, 1 wicket = 20 points, 1 catch = 3 points

In addition, there is a bonus point system as well:

1 century = 50 bonus points, one 5-wicket haul = 50 bonus point.

Additional information given below is available to fill up the blank cells.

I. Tendulkar has scored more runs than Ganguly.

II. Dravid has scored more runs than Sehwag.

III. Kumble has taken the highest number of wickets, which is twice the number of wickets taken by Zaheer.

IV. Dravid has taken the highest number of catches.

V. Number of catches taken by Laxman is equal to half the number of catches taken by Dravid.

**64.** Laxman is in Grade

(1) II (2) III (3) IV (4) Cannot be determined

**65.** If it is given that the total points of Ganguly is greater than that of Tendulkar, the number of centuries scored by Ganguly cannot be less than

(1) 31 (2) 29 (3) 30 (4) 35

**66.** The number of players who can be in grade IV cannot be more than

(1) 3 (2) 4 (3) 2 (4) 1

**67.** If Sehwag is in Grade II, the number of runs scored by Sehwag could not be less than

(1) 8351 (2) Sehwag cannot be in Grade II

(3) 8350 (4) None of these

# PRACTICE EXERCISE – 2

**Directions for questions 1 to 4:** Answer the questions on the basis of the information given below.

Production at a cloth manufacturing plant involves the following stages:

W — Warehouse; A — Cutting; B — Rolling; C — Bleaching; D — Accumulating ; E — Charging (Input)

The sequence of working for a unit of product is E–D–C–B–A. After this, the unit gets stored in the warehouse as the final product. Transfer between different stages of production takes negligible time. Transfer of the semi-processed units between any two stages of production occurs at the end of 1-hr shift, and 1-hr is the processing time during each stage. Final products are transferred out of warehouse only at end of day i.e. at 4 : 00 p.m. The warehouse can store any number of units i.e. it does not have capacity constraint. Following is the work capacity of cloth manufacturing plant during different shifts of the day:

| Shift time | E | D | C | B | A |
|---|---|---|---|---|---|
| 10:00 a.m.–11:00 a.m. | 2 | 6 | 4 | 1 | 1 |
| 11:00 a.m.–12:00 noon | 6 | 1 | 6 | 6 | 3 |
| 12:00 noon–1:00 p.m. | 4 | 5 | 2 | 3 | 4 |
| 1:00 p.m.–2:00 p.m. | 2 | 2 | 2 | 5 | 2 |
| 2:00 p.m.–3:00 p.m. | 5 | 5 | 5 | 1 | 5 |
| 3:00 p.m.–4:00 p.m. | 3 | 4 | 6 | 2 | 4 |

At 10:00 a.m., A, B, C, D and E stages have 1, 1, 4, 6 and 2 units respectively. There are no units kept in the warehouse at 10 : 00 a.m. 'Outstanding' is defined as the number of unfinished units at any stage of production which cannot be processed due to capacity constraint. If capacity permits, the outstanding of any shift can be processed during the next shift.

**1.** What is the maximum possible number of final products that can be stored in the warehouse at 3 : 00 p.m.?

(1) 12 (2) 15

(3) 11 (4) 13

**2.** Which stage of production will encounter 'Outstanding' for the first time?

(1) A (2) B

(3) C (4) D

**3.** Had there been only two stages of production namely E and D, what would have been the maximum possible number of final products that can be stored in the warehouse at 4 : 00 p.m.? (D is the final stage of production and at 10 : 00 a.m., E and D have 2 and 6 units of product respectively.)

(1) 22 (2) 23

(3) 21 (4) Cannot be determined

**4.** Had there been only two stages of production namely B and A, what would have been the maximum possible number of final products that can be stored in the warehouse at 2 : 00 p.m.? (A is the final stage of production and B is the input, with 1 unit of product at each stage at 10 : 00 a.m.)

(1) 8 (2) 13

(3) 10 (4) Cannot be determined

**Directions for questions 5 to 8:** Answer the questions on the basis of the information given below. The following table gives the break-up of marks across various topics in an examination called KAT for the period of six years from 2012 to 2017. In each of these years, the questions were asked from the given topics only. The examination is conducted once a year.

| S. No. | Topic | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|
| 1 | Algebra | 11 | 12 | 8 | 7 | 9 | 13 |
| 2 | Analogies | 5 | 5 | 10 | 5 | 8 | 5 |
| 3 | Analytical Reasoning | 20 | 30 | 15 | 24 | 15 | 10 |
| 4 | Arithmetic | 5 | 11 | 9 | 8 | 5 | 12 |
| 5 | Comprehension | 30 | 25 | 20 | 15 | 15 | 25 |
| 6 | Data Interpretation | 30 | 20 | 15 | 15 | 35 | 25 |
| 7 | Data Sufficiency | 10 | 4 | 13 | 3 | 15 | 2 |
| 8 | Fill in the blanks | 10 | 8 | 7 | 10 | 10 | 5 |
| 9 | Geometry | 9 | 11 | 5 | 15 | 6 | 9 |
| 10 | Mathematical Reasoning | 25 | 15 | 30 | 16 | 10 | 10 |
| 11 | Modern Maths | 6 | 5 | 11 | 4 | 0 | 2 |
| 12 | Number System | 8 | 7 | 7 | 11 | 9 | 6 |
| 13 | Parajumbles | 8 | 7 | 0 | 10 | 5 | 20 |
| 14 | Sentence Correction | 8 | 5 | 15 | 7 | 8 | 6 |

**5.** For how many years, were the marks allotted to geometry questions lesser than those allotted to analogies as well as arithmetic?
(1) 1 (2) 2 (3) 3 (4) None of these

**6.** Which topic accounted for the second lowest number of marks over the given period?
(1) Arithmetic (2) Parajumbles (3) Analogies (4) Modern Maths

**7.** Which year's paper had the maximum number of total questions during the given period?
(1) 2012 (2) 2013 (3) Both (a) and (b) (4) Cannot be determined

**8.** How many of the topics witnessed positive and negative growth rates for 2014 and 2015 respectively?
(1) 5 (2) 6 (3) 8 (4) None of these

**Directions for questions 9 to 12:** Answer the questions on the basis of the information given below.
The following table gives the brand-wise percentage distribution of certain categories of cars sold in India in 2017.

| | Small | Midsize | MUV | Sedan | SUV |
|---|---|---|---|---|---|
| **Tata** | 25 | 25 | 50 | 12.5 | 40 |
| **Maruti** | 30 | 15 | 30 | 7.5 | 6 |
| **Hyundai** | 24 | 20 | 10 | 15 | 12 |
| **Honda** | 15 | 33.33 | 8.33 | 40 | 16 |
| **BMW** | 0 | 6.66 | 1.66 | 20 | 8 |

The following table shows category-wise percentage distribution of given brands of cars.

| | Tata | Maruti | Hyundai | Honda | BMW |
|---|---|---|---|---|---|
| **Small** | 25 | 50 | 40 | 18.75 | 0 |
| **Midsize** | 15 | 12.5 | 20 | 25 | 16 |
| **MUV** | 30 | 25 | 10 | 6.25 | 4 |
| **Sedan** | 10 | 8.33 | 20 | 40 | 64 |
| **SUV** | 20 | 4.16 | 10 | 10 | 16 |

Note: These may not be the only brands of car in the given categories.

9. If Hyundai sold 6000 Midsize cars in India in 2017, then the number of SUV cars sold by the brand which had the second highest share in SUV category could not be more than
(1) 3600 (2) 4200 (3) 4500 (4) None of these

10. What was the ratio of the number of Honda Sedans sold to the number of Midsize cars sold in India in 2017?
(1) 15 : 8 (2) 8 : 15 (3) 3 : 10 (4) 6 : 5

11. If BMW sold 25000 cars in India in 2017, then what was the number of Sedans sold by the brand which has the smallest share in that category?
(1) 1200 (2) 4000 (3) 6000 (4) Cannot be determined

12. Revenue earned by Maruti from Small cars was what percentage of the revenue earned by Honda from Sedans?
(1) 111.1% (2) 112.5% (3) 87.5% (4) Cannot be determined

**Directions for questions 13 to 16:** Answer the questions on the basis of the information given below.

The following table shows the information related to population and a few other parameters for 5 states of India for the year 2017.

| States | Population (In Lakhs ) | Rural population (In %) | Literacy Rate (In %) | No. Of women per 1000 men |
|---|---|---|---|---|
| P | 720 | 40 | 50 | 920 |
| Q | 400 | 70 | 55 | 914 |
| R | 420 | 55 | 45 | 970 |
| S | 350 | 64 | 44 | 958 |
| T | 640 | 30 | 60 | 990 |

13. In rural region of state P, all women i.e. 188 Lakh are literate and all men are illiterate. The literacy rate among urban men in state P is atleast
(1) 40% (2) 0% (3) 4% (4) None of these

14. If the literate population, staying in urban area, of each state is maximum possible, then in how many states urban population can be 100% literate?
(1) 2 (2) 1 (3) 3 (4) More than 3

15. In each state 10% of rural population migrates to urban areas of the same state.If this migrant population is illiterate then which state will have lowest literacy rates in its urban areas?
(1) Q (2) R (3) S (4) Cannot be determined

16. If 70% of literate population of each state lives in urban areas, then which state has the lowest percentage of literacy in rural areas?
(1) Q (2) R (3) S (4) Cannot be determined

**Directions for questions 17 to 20:** Answer the questions on the basis of the information given below.

The tables below show the fare structure and the average number of passengers who travel per day for a bus service connecting villages A, B, C and D.

Fare per passenger (Rs.)

| Source \ Destination | A | B | C | D |
|---|---|---|---|---|
| **A** | - | 15 | 18 | 16 |
| **B** | 15 | - | 8 | 20 |
| **C** | 18 | 8 | - | 13 |
| **D** | 16 | 20 | 13 | - |

Number of passengers per day

| Source \ Destination | A | B | C | D |
|---|---|---|---|---|
| **A** | - | 30 | 35 | 15 |
| **B** | 25 | - | 42 | 16 |
| **C** | 23 | 12 | - | 5 |
| **D** | 5 | 10 | 14 | - |

A passanger who wants to travel by using the given bus service, can buy a ticket between any two of the given stations only. It is also known that a commuter has to buy a ticket at the boarding station.

**17.** At which station is the collection the maximum?

(1) A (2) B (3) C (4) D

**18.** What is the total daily collection (in Rs.) on the route B–C–D–C–B ?

(1) 579 (2) 679 (3) 779 (4) 879

**19.** If the fare is charged at a rate 40p per km along all the routes except BD, along which it is 60p per km, what is the approximate length (in km) of the route BDAC?

(1) 118 (2) 138 (3) 158 (4) 177

**20.** A revenue inspector residing in village C travels to villages A, B and D in that order, on regular basis. His pattern of travel is such that he travels to only one village each day and returns to his home village at the end of the same day. What are his expenses on bus fare in the month of September 1999 considering he does not travel on Sundays? It is further known that 31st July is a Sunday and the inspector travelled to village D on 30th September.

(1) Rs. 580 (2) Rs. 666 (3) Rs. 780 (4) Data inconsistent

**Directions for questions 21 to 24:** Answer the questions on the basis of the information given below.

The following table shows the details of various mutual fund schemes available in the market. The returns indicate the average return over the given time period (1-year or 3-year) in rupee terms.

| Scheme | Assets (Rs. in crore) | Return 1-year | Return 1-year SIP | Return 3-year | Best 1-year return | Worst 1-year return |
|---|---|---|---|---|---|---|
| HSBC Equity | 1108.3 | 93.36 | 60.99 | — | 195.44 | 93.33 |
| Reliance Growth | 493.76 | 80.29 | 52.21 | 50.74 | 229.36 | –56.73 |
| Franklin India Prima | 629.32 | 69.87 | 46.53 | 56.01 | 217.85 | –47.60 |
| DSPML Opportunities | 604.39 | 68.88 | 39.59 | 36.68 | 166.83 | –44.87 |
| Franklin India Bluechip | 1668.93 | 67.6 | 34.55 | 32.91 | 199.42 | –36.54 |
| Birla Dividend Yield Plus | 433.74 | 61.67 | 27.97 | — | 146 | 60.81 |
| Templeton India Growth | 367.04 | 61.06 | 29.69 | 30.04 | 152.23 | –39.49 |
| Reliance Vision | 658.62 | 59.69 | 26.59 | 56.12 | 212.39 | –47.82 |
| HDFC Equity | 993.65 | 57.55 | 28.78 | 38.98 | 179.39 | –40.23 |
| HDFC Top 200 | 605.03 | 56.03 | 28.94 | 36.71 | 154.57 | –38.98 |

According to the directives of SEBI, the scheme (among those given above), having the highest ratio of the difference between Best 1-year return and Worst 1-year return to the assets of that scheme, will be given a gold medal. The second-best ratio holder scheme gets a silver medal. The schemes having the worst two ratios will be barred from doing any business in future.

**21.** How many schemes are there with assets of more than Rs. 500 crore and the ratio of Best 1-year return to Return 1-year more than 2?

(1) 5 (2) 6 (3) 7 (4) 8

**22.** Based on the SEBI's directive, which scheme will get the gold medal?

(1) Reliance Growth (2) Franklin India Prima

(3) HSBC equity (4) Reliance Vision

**23.** Based on the SEBI's directive, which scheme will get the silver medal?

(1) Templeton India Growth (2) Reliance Vision

(3) DSPML Opportunities (4) HDFC Top 200

**24.** Based on the SEBI's directive, which two schemes will be barred from doing any business in future?

(1) HSBC Equity and Franklin India Blue-chip

(2) Birla Dividend Yield Plus Franklin India Blue-chip

(3) HSBC Equity and HDFC Equity

(4) None of these

**Directions for questions 25 to 28:** Answer the questions on the basis of the information given below.

Brass alloy is made by mixing copper and zinc in a certain proportion. The following table shows the information related to four alloy – copper used in each alloy was of a different quality, quantity and price, whereas zinc used in each alloy was of the same quality and price @ Rs 150/kg. In none of the alloy, Weight of zinc is more than the weight of copper.

| | Weight of copper (in Kg) | Rate of copper (in Rs/Kg) | Weight of zinc (in Kg) | Rate of brass (in Rs/Kg) |
|---|---|---|---|---|
| Alloy 1 | 12 | 90 | W | A |
| Alloy 2 | 16 | 60 | X | B |
| Alloy 3 | 18 | 75 | Y | C |
| Alloy 4 | 20 | 102 | Z | D |

Price of brass alloy per kg = (weight of copper × rate of copper + weight of zinc × rate of zinc)/(weight of copper + weight of zinc)

It is also known that W, X, Y, Z, A, B, C and D are natural numbers.

**25.** How many values can B take ?

(1) 3 (2) 4 (3) 5 (4) More than 5

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

i. 'A' is definitely less than 'C'

ii. Whenever 'W' is more than 'Z', 'A' is not less than any possible value of 'C'

iii. When 'W' and 'Z' are equal, 'A' and 'D' can also be equal

iv. 'Z' can take 3 values

(1) Only iv (2) Only iv & ii (3) Only ii & iii (4) Only ii

**27.** If equal weights of Alloy 1 and Alloy 2 are melted together to form a new alloy, then which of the following is not a possible price of the new alloy (in Rs/Kg)?

(1) 105 (2) 96 (3) 90 (4) None of these

**28.** Which of the following value(s) is/are possible for more than one out of A, B, C and D?

(1) 102 (2) 120 (3) 118 (4) (1) and (2) both

**Directions for questions 29 to 32:** Answer the questions on the basis of the information given below.

The following Table gives the number of students across six different classes of Pune Modern School in the years 2016 and 2017.

| Class | Students in the year 2016 | Students in the year 2017 |
|---|---|---|
| V | 100 | 125 |
| VI | 75 | 82 |
| VII | 68 | 65 |
| VIII | 60 | 57 |
| IX | 45 | 50 |
| X | 34 | 47 |

It is also known that:

i. New students join the school only in class V.

ii. No student leaves the school before passing out class X.

iii. The students who fail in a class in a year will study in the same class next year.

**29.** What was the maximum possible number of students who joined the school in 2017?

(1) 100 (2) 76 (3) 75 (4) None of these

**30.** In 2016, which of the following was not a possible pass percentage of class VI?

(1) 60% (2) 16% (3) 58.66% (4) More than one of these

**31.** In 2016, if the number of students who passed in class VI was more than the number of students who failed in class IX, then what was the minimum pass percentage of class VIII?

(1) 46.66% (2) 48.33% (3) 53.33% (4) None of these

**32.** In 2016, if the pass percentage in class IX was 60%, then what was the pass percentage of class V?

(1) 33.33% (2) 67% (3) 58% (4) None of these

**Directions for questions 33 to 36:** Answer the questions on the basis of the information given below.

The table below gives the marks scored by six candidates of an engineering college in four subjects – Digital systems, Analog systems, Power electronics and Microprocessors. Each subject is assigned a Credit as mentioned in bracket along with the subject name as shown in the table below.

| Subject / Student | Digital systems (4) | Analog systems (2) | Power electronics (3) | Microprocessors (6) |
|---|---|---|---|---|
| Arihant | 78 | 34 | 63 | 72 |
| Gopal | 67 | 65 | 81 | 51 |
| Nitin | 75 | 61 | 77 | 58 |
| Saurabh | 31 | 47 | 49 | 78 |
| Prabhakar | 55 | 62 | 62 | 49 |
| Gaurav | 42 | 46 | 92 | 44 |

The grade assigned to a student in a subject is based on the marks scored by him in that subject and each grade is assigned a distinct point. The following tables show the relation between 'marks and grade', and 'grade and points'.

| Marks(M) | Grade |
|---|---|
| $M \geq 80$ | A |
| $65 \leq M < 80$ | B |
| $50 \leq M < 65$ | C |
| $40 \leq M < 50$ | D |
| $M < 40$ | E |

| Grade | Points |
|---|---|
| A | 5 |
| B | 4 |
| C | 3 |
| D | 2 |
| E | 1 |

The CGPA of a student is calculated using the following formula:

$$\text{CGPA} = \frac{\Sigma[\text{Credit(Subject S)} \times \text{Points Received(subject S)}]}{\Sigma \text{ Credits}}$$

("S" represents a subject out of the four subjects)

**33.** The names of the two students who got the same CGPA are

(1) Nitin and Arihant (2) Gaurav and Prabhakar

(3) Prabhakar and Saurabh (4) No two students got the same CGPA

**34.** Who got the highest CGPA ?

(1) Nitin (2) Arihant (3) Saurabh (4) None of these

**35.** Except the student who got the highest CGPA among these six students, everybody applied for rechecking and each one of them got their marks increased in one or more subjects. One of them got 'k' more marks in total, after rechecking, and his CGPA became the highest. What is the smallest possible value of k?

(1) 4 (2) 7 (3) 6 (4) 5

**36.** What was the CGPA of Gaurav?

(1) 2.66 (2) 2.6 (3) 2.4 (4) 2.56

**Directions for questions 37 to 40:** Answer the questions on the basis of the information given below.

Rahul has a total of 80 coins and these coins are made up of different metals among platinum, gold, silver, bronze, copper and aluminium. Denominations of platinum and gold coins are multiple of 25 (in paise) and that of coins made up of other metals are multiple of 5 (in paise). The range of denominations of these coins and the breakup of total coins are given in the tables below.

| Variety | Range of denomination (In Paise) |
|---|---|
| Platinum | (200,500 ] |
| Gold | [100,200] |
| Silver | [75,100) |
| Bronze | [50,75) |
| Copper | [25,50) |
| Aluminium | [1,25) |

[x, y) means all the numbers between x and y, including x and excluding y.

| Variety | Number of coins (in %) |
|---|---|
| Platinum | 5 |
| Gold | 15 |
| Silver | 20 |
| Bronze | 20 |
| Copper | 30 |
| Aluminium | 10 |

**37.** Total value of silver and bronze coins with Rahul can exceed the value of platinum and gold coins with him by at most

(1) 720 paise (2) 620 paise (3) 540 paise (4) 450 paise

**38.** Rahul had atleast one copper coin each of all possible denominations and total value of all these copper coins is Rs. 9.60. What is the maximum number of 45 paise copper coins that he could have?

(1) 18 (2) 17 (3) 16 (4) 15

**39.** If government allows use of only those coins in market whose value (in paise) is multiple of 25, then what can be the maximum value of coins that Rahul can use in the market?

(1) Rs. 70 (2) Rs. 84 (3) Rs. 78 (4) Rs. 72

**40.** What is the maximum number of coins of denominations lying between 25 and 50 paise, both inclusive, with Rahul?

(1) 32 (2) 48 (3) 40 (4) 24

**Directions for questions 41 to 44:** Answer the questions on the basis of the information given below.

A company launched four types of products – software inhouse, software export, hardware inhouse and hardware export recently. The following table shows the figures related to sum of the key business parameters for the company in 2017.

**Company A 's business details**

| Business | Annual sales (in Rs.) | Margin percentage | Number of employees | Annual salary per employee (in Rs.) |
|---|---|---|---|---|
| Software Inhouse | 0.2 crore | 23 | 25 | 20000 |
| Software Export | 1.5 crore | 47 | 15 | 100000 |
| Hardware Inhouse | 0.4 crore | 31 | 40 | 15000 |
| Hardware Export | 2 crore | 52 | 40 | 80000 |

Total cost of any business for year

$= \text{Annual sales} - \text{Annual sales} \times \frac{\text{Margin}}{100} = \text{Other cost} + \text{Salary paid to the employees}$

**41.** For which business was the salary as a percentage of total cost least?

(1) Software inhouse (2) Software export

(3) Hardware inhouse (4) Hardware export

**42.** Had the everage salary of Software Inhouse employee been equal to that of Hardware Inhouse employee and other costs remain the same, by what percent would have been the margin of Software Inhouse more than its actual margin?

(1) 8.75% (2) 29.25%

(3) 6.25% (4) 27.17%

**43.** In 2018, if the total annual sales of the company increases by 15%, and the salary of the employees increases by 12.5%, what is total margin of the company?

(1) Rs. 2.45 crore (2) Rs. 1.91 crore

(3) Rs. 1.88 crore (4) Data insufficient

**44.** In 2018, if total cost of Hardware Export increases by 15%, by what per cent should salary be reduced so that margin percentage of Hardware Exports remains the same as it was in 2017?

(1) 45% (2) 25%

(3) 30% (4) 15%

**Directions for questions 45 to 48:** Answer the questions on the basis of the information given below.

Citrus Mobile Ltd. launched a new model "Orange" in April, 2017. For the mobile, which was sold exclusively online, the bookings started on April1, 2017 and ended on September 30, 2017. The model had only one variant at a fixed price. There were three modes of booking – premium booking, which were delivered in the same month at 5% premium i.e. one had to pay 105% of the price of the mobile; normal bookings, which were delivered in next month i.e if booking was done in Xth month, it was delivered in (X + 1)th month without any extra charges; and discounted bookings, which were delivered in next to next month, i.e if booking was done in Xth month, it was delivered in (X + 2)th month, at 2% discount i.e. one had to pay 98% of the price of the mobile. The payment for all kind of deliveries was done in the month of booking. In every month, except April, exactly one-fifth of the bookings were normal bookings.

The following table gives the number of bookings and the number of deliveries for the given period.

| Month | April | May | June | July | August | September | October | November |
|---|---|---|---|---|---|---|---|---|
| No. of bookings | 1240 | 1060 | 820 | 900 | 1100 | 1360 | 0 | 0 |
| No. of deliveries | 0 | 888 | 953 | 924 | 1080 | 1080 | 790 | 765 |

**45.** For how many moths premium collected was more than discount given?

(1) 2 (2) 3

(3) 4 (4) 5

**46.** In which month was the number of premium bookings as a percentage of total bookings highest?

(1) August (2) September

(3) May (4) July

**47.** How many Orange mobiles booked in June were delivered in August?

(1) 532 (2) 538

(3) 496 (4) 512

**48.** In how many months did number of discounted bookings constitute not more than half of total bookings in that month?

(1) 1 (2) 2

(3) 3 (4) 4

**Directions for questions 49 to 52:** Answer the questions on the basis of the information given below.

On the occasion of Diwali, Pranav bought gifts from ten shops namely Sh1, Sh2, Sh3, … Sh10. These shops are located in four different areas – Andheri, CP, NFC and Gurgaon. Pranav bought only four types of gifts from these shops – wallet, watch, perfume and pens. Table 1 gives the number of gifts of each type bought from these gift shops and Table 2 gives the number of gifts of each type bought from the four areas.

| Shops | Watch | Wallet | Perfume | Pen |
|---|---|---|---|---|
| Sh1 | 0 | 1 | 0 | 1 |
| Sh2 | 2 | 1 | 0 | 0 |
| Sh3 | 1 | 3 | 1 | 1 |
| Sh4 | 1 | 0 | 0 | 2 |
| Sh5 | 1 | 0 | 1 | 1 |
| Sh6 | 3 | 1 | 0 | 1 |
| Sh7 | 0 | 0 | 1 | 1 |
| Sh8 | 1 | 2 | 0 | 1 |
| Sh9 | 2 | 1 | 0 | 2 |
| Sh10 | 0 | 1 | 2 | 1 |

| Areas | Watch | Wallet | Perfume | Pen |
|---|---|---|---|---|
| Andheri | 5 | 2 | 1 | 2 |
| CP | 3 | 1 | 0 | 4 |
| NFC | 2 | 3 | 2 | 2 |
| Gurgaon | 1 | 4 | 2 | 3 |

**49.** Sh7 is located in

(1) Andheri
(2) NFC
(3) Gurgaon
(4) Cannot be determined

**50.** Which of the following groups of shops are not located in Andheri?

(1) Sh6 and Sh2
(2) Sh6 and Sh7
(3) Sh2 and Sh9
(4) More than one of the above

**51.** Which area definitely has only 2 of these shops?

(1) Andheri
(2) Gurgaon
(3) CP
(4) None of these

**52.** Which of the following shops is located in Gurgaon ?

(1) Sh1
(2) Sh4
(3) Sh8
(4) More than one of the above

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

The table given below shows the information related to the postpaid plans offered by three different mobile service providers – Airtel, Vodafone and Idea. The rent and the CLIP charges are payable on a monthly basis, unless otherwise mentioned, whereas charges for all calls – STD or local – are payable in rupees per minute. The SMS rates are given in rupees per SMS. A person is considered to be on roaming when he is outside of his state. The roaming rental is applicable only when a person uses roaming services.

| | **All Charges in rupees** | | |
|---|---|---|---|
| | **Airtel** | **Vodafone** | **Idea** |
| RENTAL | 150 | 175 | 100 |
| CLIP | 50 | 75 | 75 |
| INCOMING CALLS | Free | Free | Free |
| STD CALLS | 2.65 | 3 | 3 |
| **LOCAL CALLS TO** | | | |
| GSM PHONE | 1.5 | 1.5 | 1 |
| LANDLINE PHONE | 3 | 2 | 2 |
| CDMA PHONE | 2.5 | 2 | 2.5 |
| **SMS** | | | |
| LOCAL | 1 | 1 | 1 |
| NATIONAL | 2 | 2 | 1.5 |
| INTERNATIONAL | 5 | 5 | 3 |
| **ROAMING** | | | |
| RENT | 50 per month | 100 per month | 1.5 per day |
| INCOMING CALLS | 2 | 3 | 2.5 |
| OUTGOING CALLS | 2 | 3 | 2.5 |
| SMS (ANYWHERE) | 2 | 2 | 2 |

**53.** A sales manager travels for 10 days in a month outside his state. In this period, on an average, he receives 6 calls of 1 min each per day and he makes 2 calls of 1 min each per day. He does not use the SMS facility during this period. Based on this observation, he wants to minimize his mobile expenses for these 10 days. Which one of the three given mobile service providers should he choose?

(1) Idea
(2) Airtel
(3) Vodafone
(4) Any one between Airtel and Idea

**54.** If all the service providers decide to charge the same amount for all calls, both local and STD, and all SMS, which mobile service provider should a person, who does not go outside his state, choose?

(1) Idea
(2) Airtel
(3) Vodafone
(4) Any one of the given 3 service providers

**55.** Ajay, who does not go outside of his state, has a budget of Rs. 1,500 per month for mobile phone expenses. He makes local calls for an equal amount of time to GSM, landline and CDMA phones. If he does not make any STD calls or sends any SMS, which mobile service provider will give him service to make calls for maximum amount of time?

(1) Airtel
(2) Vodafone
(3) Idea
(4) Either (2) or (3)

**56.** Idea comes up with a new scheme in which it waives off CLIP charges if a customer is on roaming for 7 or more days in a month. If Ram, who uses Idea mobile services, receives the same number of calls every day of 1 min each and does not use outgoing calls facility or SMS facility while on roaming then what is the maximum number of calls that he can receive everyday such that his incoming call charges while on roaming does not exceed Rs. 75. (Assume he is on roaming for 10 days in a month)

(1) 3
(2) 4
(3) 2
(4) Not possible

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

The following table provides partial information about the composition of six different alloys namely A, B, C, D, E and F. Each of these six alloys contains the five different elements namely Zinc, Tin, Lead, Copper and Nickel. An alloy G, the composition of which is not given in the table, contains alloys A, B and C in the ratio 2 : 1 : 3. It is also known that in alloy G, tin, lead and copper are present in an equal quantity.

| Alloy | Zinc | Tin | Lead | Copper | Nickel |
|---|---|---|---|---|---|
| A | 10% | 40% | | | 10% |
| B | 25% | 15% | 50% | 5% | 5% |
| C | 15% | | 20% | | 35% |
| D | 20% | 25% | 15% | 30% | 10% |
| E | 5% | 50% | 25% | 5% | 15% |
| F | 40% | 10% | 5% | 30% | 15% |

**57.** Find the percentage of copper in alloy A.

(1) $\frac{95}{9}$ (2) $\frac{95}{3}$ (3) $\frac{25}{9}$ (4) $\frac{25}{3}$

**58.** If an alloy X, which contains 15% nickel, at least 15% zinc and at most 20% copper, is to be made, how many combinations of exactly two of the six mentioned alloys can be used to make it?

(1) Three (2) Four (3) Five (4) Two

**59.** Which of the following can be a value of the ratio in which alloys A, E and F need to be mixed to get at least 12% lead in the resulting mixture?

(1) 4 : 1 : 1 (2) 2 : 1 : 3 (3) 1 : 2 : 3 (4) 1 : 2 : 4

**60.** If an alloy Z, which contains at least 8.25% nickel, is to be made by using the alloys mentioned in the table, the percentage of alloy B in alloy Z cannot be more than

(1) 95.46% (2) 83.12% (3) 97.24% (4) 89.16%

**Directions for questions 61 to 64:** Answer the questions on the basis of the information given below.

The table given below shows the total population, ratio of the number of males and females, literacy rate and number of literate females in eight different states of India for the year 2015.

| Name | Population (in lakh) | Male : Female | Literacy rate | Number of literate females (in lakh) |
|---|---|---|---|---|
| Bihar | 570 | 3 : 2 | 70% | 199 |
| Odisha | 360 | 5 : 4 | 80% | 120 |
| UP | 605 | 7 : 4 | 60% | 180 |
| Jharkhand | 340 | 9 : 8 | 65% | 95 |
| Assam | 425 | 14 : 11 | 84% | 167 |
| MP | 510 | 10 : 7 | 90% | 169 |
| Kerala | 240 | 5 : 3 | 95% | 80 |
| Karnataka | 320 | 9 : 7 | 85% | 102 |

The table given below shows the age-wise percentage break up of males and females separately in these eight states taken together in the same year.

| Age group(x) | Male | Female |
|---|---|---|
| $x \leq 25$ years | 60% | 55% |
| $25 < x \leq 40$ | 20% | 20% |
| $40 < x \leq 60$ | 10% | 15% |
| $60 < x \leq 75$ | 5% | 7% |
| $x > 75$ years | 5% | 3% |

**61.** The approximate value (in lakhs) of the average number of literate males in the eight states taken together was

(1) 184 (2) 186 (3) 187 (4) 188

**62.** What percentage (approximately) of total population of all the eight states taken together was illiterate?

(1) 21.21 (2) 23.23 (3) 25.25 (4) 33.33

**63.** A state having at least 75% female literacy rate is placed in 'Group A' by HRD ministry of India. How many states, out of the eight states, are placed in 'Group A'?

(1) 6 (2) 5 (3) 4 (4) 3

**64.** By what approximate percentage was the number of total males in the age group $'25 < x \leq 40'$ greater than the number of total females in the same age group for the eight states taken together?

(1) 41.58 (2) 39.09 (3) 46.63 (4) 37.14

# *ANSWER KEYS*

## PRACTICE EXERCISE – 1

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **1.** (1) | **2.** (2) | **3.** (3) | **4.** (1) | **5.** (3) | **6.** (4) | **7.** (2) | **8.** (1) | **9.** (1) | **10.** (2) |
| **11.** (4) | **12.** (3) | **13.** (1) | **14.** (1) | **15.** (4) | **16.** (1) | **17.** (2) | **18.** (1) | **19.** (2) | **20.** (4) |
| **21.** (2) | **22.** (3) | **23.** (4) | **24.** (1) | **25.** (4) | **26.** (3) | **27.** (2) | **28.** (4) | **29.** (1) | **30.** (1) |
| **31.** (1) | **32.** (3) | **33.** (4) | **34.** (4) | **35.** (3) | **36.** (1) | **37.** (3) | **38.** (3) | **39.** (2) | **40.** (1) |
| **41.** (3) | **42.** (1) | **43.** (4) | **44.** (1) | **45.** (2) | **46.** (3) | **47.** (1) | **48.** (2) | **49.** (1) | **50.** (3) |
| **51.** (3) | **52.** (1) | **53.** (2) | **54.** (4) | **55.** (3) | **56.** (4) | **57.** (3) | **58.** (3) | **59.** (2) | **60.** (4) |
| **61.** (2) | **62.** (4) | **63.** (2) | **64.** (3) | **65.** (3) | **66.** (1) | **67.** (2) | | | |

## PRACTICE EXERCISE – 2

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **1.** (4) | **2.** (4) | **3.** (2) | **4.** (1) | **5.** (1) | **6.** (3) | **7.** (4) | **8.** (1) | **9.** (3) | **10.** (2) |
| **11.** (4) | **12.** (4) | **13.** (4) | **14.** (3) | **15.** (4) | **16.** (3) | **17.** (1) | **18.** (2) | **19.** (1) | **20.** (2) |
| **21.** (3) | **22.** (1) | **23.** (1) | **24.** (1) | **25.** (3) | **26.** (3) | **27.** (4) | **28.** (4) | **29.** (2) | **30.** (1) |
| **31.** (2) | **32.** (4) | **33.** (2) | **34.** (4) | **35.** (1) | **36.** (2) | **37.** (3) | **38.** (3) | **39.** (1) | **40.** (3) |
| **41.** (2) | **42.** (4) | **43.** (4) | **44.** (1) | **45.** (2) | **46.** (1) | **47.** (2) | **48.** (1) | **49.** (1) | **50.** (3) |
| **51.** (3) | **52.** (4) | **53.** (2) | **54.** (1) | **55.** (3) | **56.** (1) | **57.** (2) | **58.** (4) | **59.** (3) | **60.** (4) |
| **61.** (1) | **62.** (2) | **63.** (1) | **64.** (1) | | | | | | |

# EXPLANATIONS

## PRACTICE EXERCISE – 1

**1.** Total cost of BEL shares = 8 crore $\times$ 60
= Rs. 480 crore.

$$\text{Government holding} = \frac{75}{100} \times 480 = \text{Rs. } 360 \text{ crore.}$$

$$\text{Disinvestment (20\%)} = \frac{20}{100} \times 360 = \text{Rs. } 72 \text{ crore.}$$

Total cost of BML shares = 3.64 × 15
= Rs. 54.6 crore.
Government holding

$$= \frac{60}{100} \times 54.6 = \text{Rs. } 32.76 \text{ crore.}$$

Disinvestment (25%)

$$= \frac{25}{100} \times 32.76 = \text{Rs.}8.19 \text{ crore}$$

Hence, the total revenue generated
= 72 + 8.19 = Rs. 80.19 crore.

**2.** The required difference = $(175 - 125) \times \frac{66.7}{100} \times 30$
= Rs. 1,000.5 crore.

**3.** The price of BCL shares fell to Rs. 300.
Loss on each share = Rs. 50
$\therefore$ Fall in the value of shares held by the government

$$= 50 \times \frac{80}{100} \times (1.515) = \text{ Rs. } 60.6 \text{ crore}$$

**For questions 4 to 6:**

Considering the Action genre:

$$\text{Total number of hit movies} = \frac{37.5}{100} \times 192 = 72$$

$\therefore$ Total number of flop movies = 192 – 72 = 120.

$$\text{Number of flop movies by STS} = \frac{10}{100} \times 120 = 12$$

Now, 50% of the movies of STS are hit and the rest 50% flop.

Number of hit movies by STS = 12

$\therefore$ Total number of movies by STS = 12 + 12 = 24.

Similarly, we can determine these values for other genres. The whole information has been summarized in the table below.

| Genre | Action | Romance | Drama | Patriotic | Thriller | Total |
|---|---|---|---|---|---|---|
| Total | 192 | 250 | 300 | 77 | 216 | 1035 |
| Total number of hit movies | 72 | 90 | 100 | 22 | 96 | 380 |
| Total number of flop movies | 120 | 160 | 200 | 55 | 120 | 655 |
| Number of flop movies by STS | 12 | 10 | 25 | 11 | 6 | 64 |
| Number of hit movies by STS | 12 | 15 | 5 | 11 | 12 | 55 |
| Total number of movies by STS | 24 | 25 | 30 | 22 | 18 | 119 |

**4.** Number of hit movies by STS which belonged to one of three genres Drama, Patriotic or Thriller
= 5 + 11 + 12 = 28.

**5.** Number of flop movies as a percentage of total number of movies across all five genres

$$= \frac{655}{1035} \times 100 = 63.28\%.$$

**6.** The number of hit movies by STS is at least 50% of the number of flop movies by STS in all genres, except Drama.

**For questions 7 to 9:** The absolute and percentage variation in the prices of the shares over the given period are as follows :

| Company | Share prices as on 5th June 2016 | Share prices as on 5th June 2017 | Absolute variation | % variation |
|---|---|---|---|---|
| A | 150 | 230 | 80 | 53.3% |
| B | 500 | 575 | 75 | 15.0% |
| C | 200 | 320 | 120 | 60.0% |
| D | 400 | 440 | 40 | 10.0% |
| E | 800 | 900 | 100 | 12.5% |
| F | 175 | 245 | 70 | 40.0% |

**7.** The two Telecom companies showed the highest absolute change in the value of the share prices. Therefore C and E must be the two Telecom companies. Also, the two Insurance companies showed the lowest absolute change in the value of the share prices. Therefore D and F must be the two Insurance companies. Hence, that A and B must be the two Retail companies.

$$\text{Percentage change} = \frac{(805 - 650)}{650} = \left(\frac{155}{650}\right) \times 100$$

= 24% (approx.)

**8.** Chintamani had purchased 60 shares across 4 companies and we need to calculate the maximum percentage return. This would have been possible if he had purchased 30 shares giving the maximum percentage return i.e. of company C and minimum 10 shares each of the remaining 3 companies providing the next higher percentage returns i.e 10 shares each of companies A, F and B.

Initial Value of shares purchased

30 × 200 = Rs. 6000

10 × 150 = Rs. 1500

10 × 175 = Rs. 1750

10 × 500 = Rs. 5000

Total Value = Rs. 14250

Final values of the shares purchased

30 × 320 = Rs. 9600

10 × 230 = Rs. 2300

10 × 245 = Rs. 2450

10 × 575 = Rs. 5750

Total value = Rs. 20100

Therefore percentage change $= \frac{(20100 - 14250)}{14250}$

= 41%

**9.** One of the two Telecom companies showed the highest percentage change in the value of the share prices and the other Telecom company showed the lowest percentage change in the value of the share prices. Therefore the two Telecom companies are C and D.

Initial combined share price = 200 + 400 = Rs. 600

Final combined price = 320 + 440 = Rs. 760

Percentage change $= \frac{(760 - 600)}{600}$ = 26.66%.

**10.** Food grain production in 2010-11

$= \frac{160.4}{(100 + 25)} \times 100 = 128.32.$

**11.** From the table, it can be noted that Cotton showed the maximum deviation in its production compared to the targeted production and the percentage deviation was

$\left[\frac{18.9 - 14.7}{14.7}\right] \times 100 = 28.57\%$

**12.** Production of Sugarcane in 2011-12 = 22.5 MT

Production of Sugarcane in 2012-13

= 22.5 + 4.5 = 27 MT

Production of Sugarcane in 2010-11

$= 22.5 \times \left(\frac{100}{100 + 35}\right) = 16.67$ MT

Hence, the simple annual growth rate

$= \left(\frac{27 - 16.67}{16.67}\right) \times \frac{1}{2} \times 100 = 30.98 \approx 31\%.$

**13.** Production of Oil seeds in 2019-20 = 24.4 MT

Production of Oil seeds in 2011-12 = 16.2 MT

Hence, the simple annual growth rate

$= \left(\frac{24.4 - 16.2}{16.2}\right) \times \frac{1}{8} \times 100 = 6.3\%$

**For questions 14 to 17:**

| State Rank | Company | Rank | Revenues ($ millions) | City |
|---|---|---|---|---|
| 1 | Freddie Mac | 50 | 44,002.00 | McLean |
| 2 | Sprint Nextel | 53 | 43,531.00 | Reston |
| 3 | General Dynamics | 92 | 24,212.00 | Falls Church |
| 4 | Dominion Resources | 140 | 16,524.00 | Richmond |
| 5 | Circuit City Stores | 215 | 11,597.70 | Richmond |
| 6 | Smithfield Foods | 217 | 11,506.80 | Smithfield |
| 7 | Genworth Financial | 227 | 11,029.00 | Richmond |
| 8 | SLM | 284 | 8,751.20 | Reston |
| 9 | Gannett | 302 | 8,033.40 | McLean |
| 10 | NVR | 371 | 6,156.80 | Reston |
| 11 | Owens & Minor | 418 | 5,533.70 | Mechanicsville |
| 12 | Advance Auto Parts | 478 | 4,616.50 | Roanoke |
| 13 | LandAmerica Financial | 522 | 4,015.90 | Glen Allen |
| 14 | Dollar Tree Stores | 532 | 3,969.40 | Chesapeake |
| 15 | Universal | 573 | 3,511.30 | Richmond |
| 16 | Brink's | 641 | 3,067.60 | Richmond |
| 17 | Amerigroup | 676 | 2,835.10 | Virginia Beach |
| 18 | Markel | 739 | 2,519.00 | Glen Allen |
| 19 | DynCorp | 867 | 1,967.00 | Falls Church |
| 20 | CACI | 932 | 1,755.30 | Arlington |

**14.** Universal was ranked 15 in Virginia state. Thus, 14 companies were above it.

**15.** NVR held rank 10.

**16.** DynCorp in Falls Church and Markel in Glen Allen had the same rank and it was 4.

**17.**

| | | | |
|---|---|---|---|
| 6 | Circuit City Stores | 215 | 11,597.70 |
| 7 | Smithfield Foods | 217 | 11,506.80 |

Hence, US Airways Group, with the revenues of $11,557 billion, must have been ranked 216.

**18.** Total numbers of flowers that were damaged

= 216 + 219 + 191 + 245 + 257 = 1128

So, number of new flowers of variety D that were generated by the magician is $\frac{1128}{3} = 376$. Therefore, total number of flowers of variety D available on day 4 is 191 + 376 = 567.

**19.** Aggregate number of flowers of varieties D and I on day 1, 2, and 3 = 241 + 214 + 204 + 254 + 208 + 233 = 1354.

Therefore, T = 0.5 × 1354 = 677

Aggregate number of flowers of varieties D and I on day 4 and 5 = 191 + 186 + 191 + 182 = 750

Therefore, W = 0.8 × 750 = 600

Also, M = 0.2 × 750 = 150

So, T – M + 2W = 677 – 150 + 2 × 600 = 1727

**20.** Maximum possible number of Garlands is determined by the number of flowers of variety G, because the number of flowers of variety G is least among the mentioned varieties. Maximum possible number of garlands is $\left[\frac{1031}{6}\right] = 171.$

Number of flowers of varieties F, H and G used in making the garlands is (4 × 171) = 684, (3 × 171) = 513 and (6 × 171) = 1026 respectively.

So, the number of flowers of varieties F, G and H left unused are 373, 5 and 564.

Maximum possible number of Bouquets made

$\left[\frac{373}{6}\right] + \left[\frac{5}{6}\right] + \left[\frac{569}{6}\right]$ = 62 + 0 + 94 = 156

Therefore, total number of Garlands and Bouquets = 171 + 156 = 327

**21.** Aggregate number of flowers of varieties I, J and K in the given five days is 1074, 1068 and 1076 respectively.

Aggregate number of flowers of these three given varieties = 3218.

Aggregate number of flowers of all the varieties across all the five days = 8497

Hence, percentage required

$= \frac{3218}{8497} \times 100 = 37.87\%.$

**22.** The following table lists down the range of the total number of white shirts of each brand gifted to Larry by his mentioned friends.

| | Number of white shirts | | | |
|---|---|---|---|---|
| | **Caterpillar** | **Diesel** | **Lacoste** | **Dockers** |
| **Ravneet** | 3 - 5 | 3 - 8 | 13 - 18 | 3 - 9 |
| **Heena** | 3 - 8 | 3 - 5 | 3 - 12 | 3 - 4 |
| **Sarah** | 3 - 8 | 3 - 6 | 15 - 18 | 3 - 4 |
| **Total** | **9 - 21** | **9 - 19** | **31 - 48** | **9 - 17** |

Since, the maximum possible number of white shirts of brand Caterpillar gifted to Larry is less than the minimum possible number of white shirts of brand Lacoste gifted to Larry, therefore the number of white shirts of brand Caterpillar gifted to Larry is definitely less than the number of white shirts of brand Lacoste gifted to Larry.

**23.** The following table lists down the range of the number of white and black shirts of each brand gifted by Anjana to Larry

| **Caterpillar** | | **Diesel** | | **Lacoste** | | **Dockers** | |
|---|---|---|---|---|---|---|---|
| **Black** | **White** | **Black** | **White** | **Black** | **White** | **Black** | **White** |
| 10 - 25 | 3 | 18 - 25 | 9 - 18 | 7 - 10 | 3 - 6 | 7 - 22 | 11 - 18 |
| **68 - 127** | | | | | | | |

Given that the number of shirts bought by Larry is same as the total number of shirts gifted to him by Anjana.

Therefore, at least 750 – 2 × 127 = 496 shirts are there with Larry that are neither bought by him nor gifted to him by Anjana.

**Alternate method:**

Let the number of shirts bought by Larry be x.

$\Rightarrow$ Number of shirts gifted by Anjana = x

$\Rightarrow$ Number of shirts neither bought by him nor gifted by Anjana = 750 – 2x = an even number.

Only option (4) is an even number.

**24.** The following table lists down the range of the total number of shirts of each brand gifted to Larry by his mentioned friends.

| | **Number of Shirts** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Caterpillar** | | **Diesel** | | **Lacoste** | | **Dockers** | |
| | **Black** | **White** | **Black** | **White** | **Black** | **White** | **Black** | **White** |
| **Urvashi** | 7 - 20 | 11 - 18 | 15 - 25 | 3 - 6 | 7 - 18 | 10 - 18 | 11 - 25 | 3 - 11 |
| **Simar** | 10 - 25 | 3 | 7 - 18 | 15 - 18 | 7 | 3 - 4 | 13 - 25 | 13 - 18 |
| **Total** | **17 - 45** | **14 - 21** | **22 - 43** | **18 - 24** | **14 - 25** | **13 - 22** | **24 - 50** | **16 - 29** |
| | **31 - 56** | | **40 - 67** | | **27 - 47** | | **40 - 79** | |

We can conclude from the table that the range of the total number of shirts of each brand gifted to Larry is 40 to 47.

So, the range of the total number of shirts gifted to Larry will be (40 × 4 to 47 × 4) = (160 to 188)

Only, option (1) lies within the permissible range.

**For questions 25 to 28:**

From the given table, we can calculate the following results:

AB = 3, AC = 5, AD = 2, AE = 5, AF = 3

BA = 3 × 3 = 9, BC = 6, BD = 12, BE = 9, BF = 15

CA = 25, CB = 10, CD = 25, CE = 20, CF = 15

DA = 4, DB = 8, DC = 10, DE = 2, DF= 4

EA = 25, EB = 15, EC = 20, ED = 5, EF = 10

FA = 9, FB = 15, FC = 9, FD = 6, FE = 6

**25.** While checking all the possibilities, we see that

2AC – CA = 10 – 25 = – 15 and

2AE – EA = 10 – 25 = – 15, gives the minimum value.

**26.** The sum of all the values of XY taken together
= 18 + 51 + 95 + 28 + 75 + 45 = 312

**27.** Following are the possibilities for (X, Y) such that $\frac{X}{Y} \geq 1$
(X, Y) = (B, A) (B, C) (B, E), (C, A), (C, B) (C, D) (C, E) (C, F), (D, A), (D, E), (D, F), (E, A), (E, B), (E, C), (E, D), (E, F),(F, A), (F, C), (F, D), (F, E)
Total 20 ways.

**28.** The following are the only possibility considering the fact that Y completely divides X;

$BA + AB - \frac{B}{A} = 9 + 3 - 1 = 11$

$BE + EB - \frac{B}{E} = 9 + 15 - 1 = 23.$

$CA + AC - \frac{C}{A} = 25 + 5 - 1 = 29.$

$CD + DC - \frac{C}{D} = 25 + 10 - 1 = 34.$

$DA + AD - \frac{D}{A} = 4 + 2 - 1 = 5.$

$DE + ED - \frac{D}{E} = 2 + 5 - 2 = 5.$

$DF + FD - \frac{D}{F} = 4 + 6 - 1 = 9.$

$EA + AE - \frac{E}{A} = 25 + 5 - 1 = 29.$

$ED + DE - \frac{E}{D} = 5 + 2 - 5 = 2.$

$FA + AF - \frac{F}{A} = 9 + 3 - 1 = 11.$

$FC + CF - \frac{F}{C} = 9 + 15 - 1 = 23.$

Clearly, the second highest value is 29.

**29.** Colgate used per brushing = 1.25 g
Sensoform used per brushing = 0.8 g

Percentage saving per brushing = $\frac{1.25 - .8}{1.25} \times 100$

$= \frac{0.45}{1.25} \times 100 = 36\%.$

**30.** Since, the comparison is to be done separately for each toothpaste, we can directly add the Mg ions and P ions from the table and compare it with Ca ions. From the table, it is clear that there is no toothpaste for which Ca ions are more than Mg ions and P ions put together.

**31.** Let the number of boys in primary and secondary class be $b_1$ and $b_2$.
$\Rightarrow 40 \times b_1 + 54 \times b_2 = 48 \times (b_1 + b_2)$
$\Rightarrow \frac{b_1}{b_2} = \frac{3}{4}$
Thus, $b_1 + b_2$ should be a multiple of 7 and the only possible option is (1) i.e. 14.

**32.** To see which of the statements is definitely true, we have to check each and every option one by one.
**Option (1):** Let the number of boys in primary and secondary class in the year 1997 be $b_1$ and $b_2$ respectively and in the year 1998 be $b_3$ and $b_4$.
Similarly, the girls for the same be $g_1$, $g_2$, $g_3$ and $g_4$.
From the given table, we can only find the values of $\frac{b_1}{b_2}, \frac{b_3}{b_4}, \frac{g_1}{g_2}$ and $\frac{g_3}{g_4}$ but there is no way to find the value of $(b_1 + b_2 + b_3 + b_4)$ or $(g_1 + g_2 + g_3 + g_4)$ or to compare these two quantities.
Hence, nothing can be said about the total number of boys and total number of girls in the given years.
**Option (2):** With the same logic applied in option (1) we cannot say anything about the total number of boys for all the years and the total number of girls for all the years put together.
**Option (3):** With the same convention used in option (a) for the years 1997 and 1998, we assume the same for the years 1996 and 1997 respectively.
$\Rightarrow \frac{b_1}{b_2} = \frac{3}{4}, \frac{b_3}{b_4} = \frac{1}{2}, \frac{g_1}{g_2} = \frac{1}{1}$ and $\frac{g_3}{g_4} = \frac{1}{2}$
$\Rightarrow b_1 < b_2;\ b_3 < b_4;\ g_1 = g_2$ and $g_3 < g_4$
$\Rightarrow b_1 + b_3 + g_1 + g_3 < b_2 + b_4 + g_2 + g_4$
Hence, statement in option (c) is definitely true.

**33.** Let the number of boys in primary and secondary class in the year 2000 be $B_1$ and $B_2$ respectively and in the year 2001 be $B_3$ and $B_4$ respectively.
Similarly, the number of girls in primary and secondary class in the year 2000 be $G_1$ and $G_2$ respectively and in the year 2001 be $G_3$ and $G_4$ respectively.
**In 2000:**
$58B_1 + 76B_2 = 64(B_1 + B_2) \Rightarrow 2B_2 = B_1$
$60G_1 + 80G_2 = 62(G_1 + G_2) \Rightarrow 9G_2 = G_1$
$64(B_1 + B_2) + 62(G_1 + G_2) = 63(B_1 + B_2 + G_1 + G_2)$
$\Rightarrow B_1 + B_2 = G_1 + G_2$
Total number of students in 2000 = $B_1 + G_1 + B_2 + G_2$
$= 6B_2$
Following the same logic as in the year 2000 for the year 2001:
Total number of students in 2001 = $B_3 + G_3 + B_4 + G_4$
$= \frac{9B_3}{2}$
Given that the number of boys studying in secondary classes in the year 2000 is equal to the number of boys studying in the primary classes in the year 2001.

$\Rightarrow B_2 = B_3$

$\therefore \dfrac{\text{Total number of students in 2000}}{\text{Total number of students in 2001}} = \dfrac{6B_2}{\frac{9B_3}{2}} = \dfrac{12}{9} = \dfrac{4}{3}$

Therefore, the total number of students in 2000 is 33.33% more than the total number of students in 2001.

**34.** Let the number of boys in the primary and in the secondary classes in the year 2002 be 'x' and 'y' respectively.

Let the number of girls in the primary and in the secondary classes in the year 2002 be 'z' and 'w' respectively.

For boys: $64x + 76y = 70(x + y) \Rightarrow x = y$

For girls: $80z + 90w = 84(z + w) \Rightarrow 2z = 3w$

For all the boys and girls:

$70(x + y) + 84(z + w) = 80(x + y + z + w)$

$\Rightarrow 2(z + w) = 5(x + y) = 10x \Rightarrow 3w + 2w = 10x$

$\Rightarrow w = 2x$ and $z = 3x$

Given that $y = 500$.

Therefore, $x = 500$, $z = 1500$ and $w = 1000$.

Total number of students in the primary and in the secondary classes in the year 2002 = $x + y + z + w = 3500$.

**For questions 35 to 38:**

| | P | Q | R | S | Total Runs in the Tournament |
|---|---|---|---|---|---|
| **A** | 225 | 300 | 250 | 350 | 1125 |
| **B** | 250 | 325 | 275 | 400 | 1250 |
| **C** | 275 | 250 | 300 | 125 | 950 |
| **D** | 300 | 275 | 200 | 200 | 975 |
| **Total Runs by Player** | 1050 | 1150 | 1025 | 1075 | |

From the additional information,

- B is Afro-Asia Cup.
- C is Benson & Hedges Series and A and D could be either Natwest Series or the Standard Bank Series.
- (Kevin and Kemp) are (Q and S) and (Kallis and Klusener) are (P and R) in any order.

**35.** Kallis is either P or R. P's second highest score (275) is in Benson & Hedges series and R's second highest score (275) is in Afro Asia Cup.

Thus, Statement X is definitely false.

Highest individual score in Afro Asia cup = 400. A or D could be Standard Bank series. If D is Standard Bank Series, difference would be 100.

Hence, Statement Y could be true.

**36.** Klusener = P or R. Natwest Series = A or D.

According to Statement X, Klusener = P and Natwest Series = D. Hence, Standard Bank Series = A and Kallis = R.

Thus, Statement Y is true.

Hence, if one of these statements becomes false, other automatically turns false.

**37.** Kevin = Q or S. In both the cases, Kevin's lowest score is in Benson & Hedges Series. Thus, Statement X is definitely true.

Kemp = Q or S. In both the cases, Kemp's highest score is in Afro Asia Cup. Thus, Statement Y is definitely true.

Both Statement X and Statement Y are necessarily true.

**38.** If statement X is true than Q is Kevin and S is Kemp, but nothing can be said regarding statement Y.

If statement Y is true than A is Natwest series, D is Standard Bank Series and S & Q are Kemp and Kevin respectively. Now Kevin has the highest runs in all the four tournaments, hence statement X is necessarily true.

**For questions 39 to 42:**

1. The number of days for which Tata Steel's share witnessed an increase was one more than the number of days on which it witnessed a decrease. Therefore in 5 consecutive days, there were 3 increments and 2 decrements. But if the price would have been higher than 527.5 on 3rd February, then there would have been 3 consecutive increments and 2 consecutive decrements. Therefore, the share price on 3rd February was lower than the price on 2nd February and even lower than Rs. 527.
2. Also, since the price of Modi steel increased on 4 days and decreased on 1 day, therefore the share price would have increased on 1st February because there is already a decrease from 4th to 5th February.

Based on 1 and 2 above, the following is the offer price of the companies from 1st February to 6th February.

| S.N. | Name of the Company | Industry | Group | Offer price of the Companies | | | | | 6th February 2017 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 1/2/2017 | 2/2/2017 | 3/2/2017 | 4/2/2017 | 5/2/2017 | |
| 1 | Tata Steel | Steel | Tata | 594 | 595 | 596 | 594 | 595 | 593 |
| 2 | JK Steel | Steel | JK | 592 | 590 | 588 | 589 | 590 | 591 |
| 3 | Essar Steel | Steel | Essar | 591 | 592 | 593 | 594 | 595 | 596 |
| 4 | Modi Steel | Steel | Modi | 596 | 597 | 598 | 599 | 600 | 598 |
| 5 | Nippon Steel | Steel | Nippon | 598 | 596 | 597 | 598 | 599 | 597 |

Based on the above table, all the questions can be answered.

**39.** Modi Steel had the highest offer price of Rs.598 as on February 6th.

**40.** Tata Steel, JK Steel and Nippon Steel each had a price difference of Rs. 1 per share on 6th February as compared to 1st February.

**41.** As on 5th February, the highest price offers were from Modi Steel and Nippon Steel and therefore these two companies dropped out. That means the next highest bid was Rs. 595 which indicates a tie between Essar Steel and Tata Steel.

**42.** As on 4th February, only two companies had an offer price that is higher than Rs.595, which happened to be Modi Steel and Nippon Steel. Therefore the remaining 3 companies were not eligible for further participation.

**For questions 43 to 46:**

Let the total number of dialed calls by all the Inspectors, Constables and Drivers be x, y and z respectively.

By the problem, total number of dialed calls from all the Patrolling jeeps = 30.

Thus, x + y + z = 30…(i)

Total number of calls received by all the Patrolling jeeps = 82.

$\Rightarrow$ 4x + 2y + z = 82…(ii)

Solving (i) and (ii), we get 3x + y = 52.

Thus, the following cases are possible:

| Cases | Possible values | | | Total |
|---|---|---|---|---|
| | x | y | z | |
| 1 | 11 | 19 | 0 | 30 |
| 2 | 12 | 16 | 2 | 30 |
| 3 | 13 | 13 | 4 | 30 |
| 4 | 14 | 10 | 6 | 30 |
| 5 | 15 | 7 | 8 | 30 |
| 6 | 16 | 4 | 10 | 30 |
| 7 | 17 | 1 | 12 | 30 |

**43.** By the question, jeep number 2 received calls from jeep numbers 1, 4 and 9.

Assuming that no calls made from jeep numbers 1 and 4 were by a driver, it can be observed that jeep 7 could have received calls only from two jeeps viz. jeep 1 and jeep 4.

**44.** From the table above, the maximum possible number of calls that can be made by the Constables is 19.

**45.** By the information given in the question only Case 3 and Case 4 are possible. Thus, minimum possible number of calls that can be made by the Drivers is 4.

**46.** By the information given in the question only Case 3 and Case 4 are possible. Thus, maximum possible number of calls that can be made by the Drivers is 6.

**47.** From the given data, it can be observed that the maximum increase in the closing stock price on a day over any of the preceding days was for SBI and it was equal to2383 – 2183 = 200.

**48.** The closing stock price of ICICI bank recorded the maximum increase in its value over the previous day on 15th May, 2013 and it was equal to 1191 – 1147 = 44.

**49.** PNB recorded the maximum percentage increase in its closing stock price during the given period and it was equal to $\left(\frac{822-740}{740}\right)\times 100 = 11.08\%$.

**50.** Let the GDP of Belgium be y Euros.

$\therefore y \times \frac{4.8}{100} \times 1.5 = x \Rightarrow y = \frac{100}{7.2}x$

Hence, the debt (in Euros) of Belgium

$= \frac{100.8}{100} \times \frac{100}{7.2}x = 14x.$

**51.** Two countries, viz. Denmark and Finland, were rated AAA.

**52.** 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.

**53.** In the years 2014, 2015, 2016 and 2017, the total numbers of candidates who got selected as officers were 4479, 5062, 4160 and 3728 respectively.

In 2014, the total number of candidates not selected = 559232 – 4479 = 554753. Let's assume that all 554753 candidates appear for CEE again – 550593 in 2015 and 4160 in 2016.

The number of fresh candidates in 2015 = 593456 – 550593 = 42863. Let's assume that all 5062 selections in 2015 happen from among the 550593 reappearing candidates. This way, all 42863 fresh candidates from 2015 become eligible to reappear and, let's assume, that they do so in 2017.

The number of fresh candidates in 2016 = 642965 – 4160 = 638805. Let's assume that all 4160 candidates selected in 2016 were those who had earlier appeared in 2014. This way, all 638805 fresh candidates from 2016 become eligible to reappear and, let's assume, that they do so in 2017.

Hence, the total number of candidates who appeared for the exam at least twice during the given period = 550593 + 4160 + 42863 + 638805 = 1236421.

**Alternate method:**

We can also say, directly by the method given above, that the answer would be 593456 + 642965 = 1236421.

**54.** As we do not have any information about the number of attempts taken by selected candidates in getting through, we are not in a position to determine this.

**55.** Only 2 banks - PSB and CB - satisfy the given criterion.

**For questions 56 to 59:** The given information can be tabulated as shown below.

| Family | Number of members | Production (in kg) | | Per head consumption (in kg) | | Total consumption (in kg) | | Surplus (in kg) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Wheat | Rice | Wheat | Rice | Wheat | Rice | Wheat | Rice | Total |
| Sharma's | 6 | 600 | 520 | 91.2 | 83.2 | 547.2 | 499.2 | 52.8 | 20.8 | 73.6 |
| Sen's | 4 | 440 | 260 | 100.8 | 60 | 403.2 | 240 | 36.8 | 20 | 56.8 |
| Srivastava's | 7 | 800 | 560 | 108.4 | 78.4 | 758.8 | 548.8 | 41.2 | 11.2 | 52.4 |
| Sehgal's | 8 | 600 | 640 | 74.4 | 75.2 | 595.2 | 601.6 | 4.8 | 38.4 | 43.2 |
| Srinivasan's | 5 | 480 | 500 | 80 | 96.8 | 400 | 484 | 80 | 16 | 96 |
| Suri's | 7 | 520 | 460 | 63.2 | 64 | 442.4 | 448 | 77.6 | 12 | 89.6 |

**56.** There were three families whose surplus of Wheat and Rice together was more than 73.5 and those families were Sharma's Srinivasan's and Suri's.

**57.** The required reduction = 74.4 – (600 – 68)/8

= 7.9 kg.

**58.** The required surplus = 73.6 + 56.8 + 52.4 + 43.2 + 96 + 89.6 = 411.6 kg.

**59.** Price of rice per kg is double as that of wheat. Sen's and Sehgal's family earned more amount by selling the surplus of rice.

**For questions 60 to 63:**

| | 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 |

**60.** 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%.

**61.** The correct order is C > E > A > D > B

**62.** 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 $\rightarrow$ 1.406, C $\rightarrow$ 1.4108

D $\rightarrow$ 1.2617, E $\rightarrow$ 1.257

So, B has the third highest ratio and hence third highest profitability.

**63.** Only statement 'b' is true.

**64.** Laxman has scored 3,000 runs and has taken 60 catches. He has not taken any wickets. If we assume that he has scored all his runs in centuries, then the maximum points earned by him will be 4680 (Runs = 3,000, Catches = 180, Centuries = 30 × 50 = 1,500).

Hence, his grade is IV.

**65.** In order to minimize the number of centuries scored by Ganguly, the total number of runs scored by Tendulkar has to be the least possible i.e. 10,001 and the number of catches and five wicket-haul taken by Ganguly have to be the maximum possible.

Minimum number of points of Tendulkar

= 10,001 + 80 × 20 + 80 × 3 + 25 × 50 + 5 × 50

= 13,341

The maximum number of catches taken by Ganguly can be 119, as the number of catches taken by Dravid, who has taken the maximum number of catches, is 120, and that of five wicket-haul can be 10.

Maximum number of points of Ganguly with zero centuries

= 10,000 + 50 × 20 + 119 × 3 + 10 × 50 = 11,857

As the total number of points of Ganguly is more than that of Tendulkar, the total number of points of Ganguly has to be at least 13,342.

The additional points required for Ganguly i.e. (13,342 – 11,857) = 1485 will come in the form of bonus point through centuries. As each century fetches 50 points, to earn 1485 points the number of centuries required is 30.

**66.** Maximum number of points of Laxman = 3000 + 30 × 50 + 60 × 3 = 4680.

Therefore, Laxman is in grade IV.

The other players whose total points could be less than 5000 are Sehwag and Zaheer.

Hence, a maximum of three players could be in grade IV.

**67.** Sehwag could score a maximum of 7,999 runs and has taken 50 catches. He has taken 40 wickets and taken 4 five wicket hauls. He has scored 10 centuries.

The maximum points that he could have = 9649

(Runs = 7,999, Catches = 150, Centuries = 500, Wickets
= 800, 5 wicket haul = 200)

Hence, he cannot be in grade II.

## PRACTICE EXERCISE – 2

**1.** The following table illustrates the production of finished product from 10 am to 3 pm:

| Time | Number of products |
|---|---|
| 10 – 11:00 | 1 |
| 11:00 – 12:00 | 1 |
| 12:00 – 1:00 | 4 |
| 1:00 – 2:00 | 2 |
| 2:00 – 3:00 | 5 |
| | 13 |

Hence, the required answer is 13.

**2.** The following will be the structure of flow internally:

| | E | D | C | B | A | Output |
|---|---|---|---|---|---|---|
| 10:00 | 2 | 6 | 4 | 1 | 1 | |
| 11:00 | 6 | ② | 6 | 4 | 1 | 1 |

Since work-capacity of D is not adequate at 11:00 to process this, D is the answer.

**3.** By using the same logic used in the previous questions, the required answer comes out to be 23.

**4.** By using the same logic used in the previous questions, the required answer comes out to be 8.

**5.** One year only in 2014.

**6.** The least marks was constituted by modern maths.

The next least one was analogies.

**7.** Marks per question is not given.

Hence total number of questions cannot be determined.

**8.** Number of topics that experienced positive growth rate in 2000 over the previous year = 5 (analogies, data sufficiency, mathematical reasoning, modern maths, sentence correction).

Each one of them had a negative growth rate in 2015.

**9.** Midsize cars makes 20% of Hyundai sales and SUV makes 10% of this, so sales of Hyundai SUV is 3000. Hence, total SUV sales is 20000.

These 5 brands make up to 82% of SUV sale so if the rest of 18% sale is by a single brand then it has the second highest share.

**10.** Let the total Honda sale be x

Sales of Honda Sedan will be 0.4x

Sales of Honda midsize will be 0.25x

In midsize, Honda share is 33.33%, hence total midsize sale will be 0.75x

So, required ratio is 0.4x : 0.75x = 8 : 15.

**11.** In Sedan category, 5% of total sales is made by others which can be further divided also.

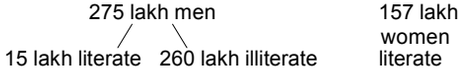
Hence, we do not know the share of the smallest brand in Sedan category.

**12.** Since, we do not know the price of a car of any category for any of the brand. Hence, the revenues cannot be compared.

**13.** In state P, male population and female population is 375 lakhs and 345 lakhs respectively; urban population and rural population is 432 lakhs and 288 lakhs respectively.

Literacy rate among urban male will be least under the conditions shown below.

**Urban region (432 lakh)**




**Rural region (288 lakh)**

188 lakh 100 lakh

literate womenilliterate men

So the number of literate women in urban area would be 157 lakhs and remaining 15 lakhs literates are male. Which means 260 urban males are illiterate.

Hence, the literacy rate among urban male

$= \frac{15}{275} \times 100 = 5.45\%.$

**14.** In state P, 60% population is urban. So even if whole literate population i.e. 50% live in urban area, 10% urban population will still remain illiterate.

In state Q, 30% population is urban which can all be literate because 55% population is literate.

Similarly, it is true for R and S but not for T.

**15.** Since we do not know the breakup of literate people between rural and urban areas for any state, data is insufficient to answer this question.

**16.** Literacy rate of rural area in each state = (0.3 × (literacy rate)/ % of rural population) × 100%

Which will be lowest for state S.

**17.** By observation, options (c) and (d) can be eliminated. Thus compare only A and B.

Collection at station A = 15 × 30 + 18 × 35 + 16 × 15 = Rs. 1320.

Collection at station B = 15 × 25 + 8 × 42 + 20 × 16 = 375 + 336 + 320 = Rs. 1031.

**18.** Collection on (BC + CD + DC + CB)

= 42 × 8 + 5 × 13 + 14 × 13 + 12 × 8

= 336 + 65 + 182 + 96 = Rs. 679.

**19.** Distance = $\frac{\text{fare per passenger}}{\text{fare per passenger per km}}$

$BD = \frac{20}{0.60} = 33.3$

$DA = \frac{16}{0.40} = 40.0$

$AC = \frac{18}{0.40} = 45.0$

$\Rightarrow$ Total distance is 118 km approximately.

**20.** From the question, 31st July are a Sunday.

Thus, 1st September are a Thursday.

$\therefore$ 4th, 11th, 18th and 25th September was Sunday.

Thus, the inspector must have travelled to the villages on (30 – 4)

= 26 days.

His expenses for the first 24 days

= 16(18 + 8 + 13) = Rs. 624.

$\therefore$ Total expenses in September 1999

= Rs. [624 + 2 (8 + 13)] = Rs. 666.

**21.** Reliance Growth, Birla Dividend Yield Plus and Templeton India Growth do not fit. Hence, the required number of companies is 7.

**22.** The required scheme was Reliance Growth.

**23.** Templeton India Growth was 2nd best and it was 0.52.

**24.** The schemes with bottom two values of the required ratio are HSBC Equity (0.09) and Franklin India Blue-chip (0.14).

**For questions 25 to 28:**

The possible values of A, B, C and D for different values of W, X, Y and Z respectively are –

Alloy 1

| W | A |
|---|---|
| 3 | 102 |
| 4 | 105 |
| 6 | 110 |
| 8 | 114 |
| 12 | 120 |

Alloy 2

| X | B |
|---|---|
| 2 | 70 |
| 4 | 78 |
| 8 | 90 |
| 14 | 102 |
| 16 | 105 |

Alloy 3

| Y | C |
|---|---|
| 7 | 96 |
| 9 | 100 |
| 12 | 105 |

Alloy 3

| Z | D |
|---|---|
| 4 | 110 |
| 10 | 118 |
| 12 | 120 |
| 20 | 126 |

**25.** B can take 5 values.

**26.** Statements (ii) and (iii) are true.

**27.** If 18kg of each are melted together then the price of the new alloy will be Rs. 90/kg. If 20kg of each are melted together then the price of the new alloy will be Rs. 96/kg. If 24kg of each are melted together then the price of the new alloy will be Rs. 105/kg. So all of these values are possible.

**28.** 102 and 120 are possible values.

**For questions 29 to 32:**

Let the number of students who joined school in 2011 be "x". So 125 – x students failed in class V in 2010 and 100 – (125 – x) = x – 25 students of class V passed in 2010. Similarly values for each year will be –

| Class | Students in the year 2016 | Students who failed in 2016 in same class | Students who passed in 2016 in previous class | Students in the year 2017 |
|---|---|---|---|---|
| V | 100 | 125 – x | x (new joinees) | 125 |
| VI | 75 | 107 – x | x – 25 | 82 |
| VII | 68 | 97 – x | x – 32 | 65 |
| VIII | 60 | 86 – x | x – 29 | 57 |
| IX | 45 | 76 – x | x – 26 | 50 |
| X | 34 | 78 – x | x – 31 | 47 |

Number of students who passed in class X will be 34 – (78 – x) = (x – 44)

So minimum value of x will be 44 because $x - 44 \geq 0$.

**29.** Maximum possible number of students who joined the school in 2017 will be 76 because $76 - x \geq 0$.

**30.** The minimum and maximum number of students from class VI who passed in 2016 is 12 & 44 respectively and hence the corresponding pass percentages will lie between 16% and 58.66%.

**31.** This means (x – 32) > (76 – x) $\Rightarrow$ x > 54. So lowest pass percentage for class VIII will be –

(55 – 26)/60 ×100% = 48.33%.

**32.** If pass percentage in class IX is 60% that means 27 students passed and x = 58. So pass percentage in class V will be (58 – 25)/100 × 100% = 33%.

**For questions 33 to 36:**

CGPA of all the students are as follows:

Gopal = 57/15 = 3.8

Nitin = 52/15 = 3.47

Arihant = 51/15 = 3.4

Gaurav = 39/15 = 2.6

Prabhakar = 39/15 = 2.6

Saurabh = 38/15 = 2.53

**33.** Gaurav and Prabhakar got the same CGPA.

**34.** Gopal got the highest CGPA.

**35.** Nitin will get highest CGPA with minimum increase if he gets 5 more marks in Digital systems and 3 more marks in Power electronics, making it 8 in total.

Arihant will get the highest CGPA with minimum increase in marks if he gets 2 more marks in Digital systems and 2 more marks in Power electronics, making it 4 in total.

For others the minimum marks needed to have highest CGPA will be much more than these values.

**36.** The CGPA of Gaurav was 2.6.

**For questions 37 to 40:**

| Variety | Number of coins |
|---|---|
| Platinum | 4 |
| Gold | 12 |
| Silver | 16 |
| Bronze | 16 |
| Copper | 24 |
| Aluminium | 8 |

**37.** Difference will be maximum when all the silver and bronze coins are of maximum possible denomination, i.e 95ps & 70Ps respectively and platinum and gold coins are of minimum possible denomination i.e 225Ps & 25Ps respectively.

$\therefore$ Difference = ( 16 × 95 + 16 × 70 ) – ( 4 × 225 + 12 × 100) = 540ps.

**38.** Total amount with Rahul in Copper coins is 960ps and the denominations possible are 25, 30, 35, 40 & 45. To maximise the number of 45ps coins

Either, (i) have only one coin of each except 25ps & 45ps. Let the number of 25ps coins be "a" and number of 45ps coins be "d".

So, 25a + 30×1 + 35 × 1 + 40 × 1 + 45 × d = 960 ; 5a + 9d = 171

Maximum possible value of 'd' is 14

Or, (ii) have only one coin of each except 25ps, 30ps & 45ps. Let the number of 30ps coins be 'b'.

Hence, d = 24 – (2 + a + b) = 22 – a – b; and we have to minimize (a + b)

So, 25a + 30b + 35 + 40 + 45(22 – a – b = 960; 4a + 3b = 21

(a + b) will be minimum when a = 3 & b = 3 and hence d = 16.

**39.** Rahul will have the maximum possible amount when he will have coins of highest possible denominations of each variety. Let the total amount with him in that case be T.

T(in Rs) = 4 × 5 + 12 × 2 + 16 × 0.75 + 16 × 0.50 + 24 × 0.25 = Rs. 70.

**40.** He can have 24 copper coins and 16 bronze coins ( of 50ps each).

**41.**

| Business | Salary (Rs. in lakhs) | Total cost (Rs. in lakhs) |
|---|---|---|
| S I | 5.0 | 15.4 |
| S E | 15.0 | 79.5 |
| H I | 6.0 | 27.6 |
| H E | 32.0 | 96.0 |

So the salary as a percentage of total cost was the least for SE.

**42.** Net decrease in cost = Net increment in the margin

= (20000 – 15000) × 25 = Rs. 1.25 lakh

Earlier net margin = Rs. 4.6 lakh

Required percentage = $\frac{1.25}{4.6} \times 100 \approx 27.17\%$.

**43.** Nothing is given said about the other costs.

Hence, the question cannot be answered.

**44.** Cost of hardware export = Rs. $2\left(1-\frac{52}{100}\right)$ crore

= Rs. 0.96 crore

Total salary = Rs. 80000 × 40 = Rs. 0.32 crore

Cost of hardware increases by 15% that is by

Rs. 0.144 crore.

So salary should be reduced by Rs. 0.144 crore.

$\therefore$ Percentage by which the salary should be reduced is $\frac{0.144}{0.32} \times 100 = 45\%$.

**For questions 45 to 48:**

All the deliveries made in November were for bookings done in September, and one-fifth of total booking in September, that is 272, were delivered in October. Hence remaining 323 were delivered in the same month. Similarly we can find for the remaining months.

| Booking / Months | Premium | Normal | Discounted |
|---|---|---|---|
| April | 0 | 617 | 623 |
| May | 271 | 212 | 577 |
| June | 118 | 164 | 538 |
| July | 183 | 180 | 537 |
| August | 362 | 220 | 518 |
| September | 323 | 272 | 765 |
| October | 0 | 0 | 0 |
| November | 0 | 0 | 0 |

**45.** Premium is 2.5 times the discount, so the month for which premium bookings is more than 0.4 times the number of discount bookings, premium collected will be more than the discount given. And this is true for months of May, August and September.

**46.** This value is highest for the month of August

**47.** 538 orange mobiles booked in June were delivered in August.

**48.** Required month is August.

**For questions 49 to 52:**

Allocation of shops to the areas is as follows –

Andheri – Sh2, Sh6, Sh7

CP – Sh4,Sh9

NFC – Sh3, Sh5

Gurgaon – Sh1, Sh8,Sh10

**49.** Sh7 is located in Andheri.

**50.** Sh9 is not located in Andheri.

**51.** Two shops are located in CP.

**52.** Sh1 and Sh8 are located in Gurgaon.

**53.** The roaming rental is Rs.50 for Airtel and Rs.15 for Idea for 10 days. A total of 80 calls are received or made during these 10 days. Given a call difference of Re. 0.50 between Airtel and Idea, the additional call charges for Idea is Rs. (80 × 0.5) i.e. Rs. 40. Hence Airtel is cheaper by Rs. 5 for the roaming period.

**54.** Rent plus CLIP is lowest for Idea among the three service providers.

**55.** Budget = Rs. 1,500.

Subtracting the rental and CLIP charges, the available balance for the three service providers is given in the table below:

| Airtel | Hutch | Idea |
|---|---|---|
| 1300 | 1250 | 1325 |

Since the total charges of one local CDMA call, one local GSM call and one landline call put together for Idea, Airtel and Vodafone is Rs. 5.5, Rs. 5.5 and Rs. 7 respectively and the amount left after rental and CLIP charges is the maximum for Idea, the plan offered by Idea would be the best choice for him.

**56.** In order to maximize the number of calls received during 10 days while on roaming, he should received as many calls as he can at an expense of Rs. 75.

$\therefore$ Number of calls which he can receive in 10 days

$= \frac{75}{2.5} = 30.$

$\Rightarrow$ Number of call which he can receive everyday

$= \frac{30}{10} = 3.$

Hence, Ram can receive a maximum of 3 calls everyday of 1 minute each while ensuring his roaming bill does not exceed Rs. 75.

**For questions 57 to 60:**

The given information can be tabulated as:

| | Zinc | Tin | Lead | Copper | Nickel |
|---|---|---|---|---|---|
| **A** | 10% | 40% | (x) % | (40 – x)% | 10% |
| **B** | 25% | 15% | 50% | 5% | 5% |
| **C** | 15% | (y) % | 20% | (30 – y)% | 35% |
| **D** | 20% | 25% | 15% | 30% | 10% |
| **E** | 5% | 50% | 25% | 5% | 15% |
| **F** | 40% | 10% | 5% | 30% | 15% |

**57.** In alloy G, the percentage of:

$$\text{Tin} = \left(2 \times \frac{40}{6} + 1 \times \frac{15}{6} + 3 \times \frac{y}{6}\right) = \frac{3y + 95}{6}$$

$$\text{Lead} = \frac{2x + 110}{6}$$

$$\text{Copper} = \frac{175 - 2x - 3y}{6}$$

$$\text{Now, } (3y + 95) = (2x + 110) = (175 - 2x - 3y)$$

$$\Rightarrow x = \frac{25}{3} \text{ and } y = \frac{95}{9}$$

Therefore, the percentage of copper in alloy A

$$= (40 - x) = \left(40 - \frac{25}{3}\right) = \frac{95}{3}.$$

**58.** There are two possible ways in which the alloy X can be formed. The possible combinations are (E and F) and (B and C).

**59.** The percentage of lead in A, E and F is $\frac{25}{3}\%$, 25% and 5% respectively.

By checking options:

Option (1): Percentage of lead in the mixture

$$= \frac{1}{6}\left(4 \times \frac{25}{3} + 1 \times 25 + 1 \times 5\right) = \frac{95}{9}\% < 12\%$$

Option (2): Percentage of lead in the mixture

$$= \frac{1}{6}\left(2 \times \frac{25}{3} + 1 \times 25 + 3 \times 5\right) = \frac{85}{9}\% < 12\%$$

Option (3): Percentage of lead in the mixture

$$= \frac{1}{6}\left(1 \times \frac{25}{3} + 2 \times 25 + 3 \times 5\right) = \frac{110}{9}\% > 12\%$$

Option (4): Percentage of lead in the mixture

$$= \frac{1}{7}\left(1 \times \frac{25}{3} + 2 \times 25 + 4 \times 5\right) = \frac{235}{21}\% < 12\%$$

Hence, option (3) is the correct answer.

**60.** Since the percentage of nickel in alloy B and alloy Z is 5% and 8.25% respectively, in order to maximize the percentage of B in Z, we need to choose alloy in which the percentage of nickel is greater than 8.25% and also the maximum among the given alloys. So, we need to choose alloy C.

Let the percentage of alloy B in alloy Z be 'x'%.

$\therefore$ $5x + 35(1 - x) = 8.25 \Rightarrow x = 89.16\%$

**For questions 61 to 64:** The following table can be made:

| Name | Population (in lakh) | Male (in lakh) | Female (in lakh) | Total Literate (in lakh) | Literate Males (in lakh) | Literate females (in lakh) |
|---|---|---|---|---|---|---|
| Bihar | 570 | 342 | 228 | 399 | 200 | 199 |
| Odisha | 360 | 200 | 160 | 288 | 168 | 120 |
| UP | 605 | 385 | 220 | 363 | 183 | 180 |
| Jharkhand | 340 | 180 | 160 | 221 | 126 | 95 |
| Assam | 425 | 238 | 187 | 357 | 190 | 167 |
| MP | 510 | 300 | 210 | 459 | 290 | 169 |
| Kerala | 240 | 150 | 90 | 228 | 148 | 80 |
| Karnataka | 320 | 180 | 140 | 272 | 170 | 102 |

**61.** The average of literate males (in lakhs) across 8 states

$$= \frac{200 + 168 + 183 + 126 + 190 + 290 + 148 + 170}{8} \approx 184.$$

**62.** The total number of illiterate people = 783

Total population = 3370

Required percentage = $\frac{783}{3370} \times 100 \simeq 23.23.$

**63.** There were six such states that had female literacy rate of at least 75% and those states were Bihar, Odisha, UP, Assam, Kerala and MP.

**64.** Total number of males in the age group $25 < x \leq 40$

$$= 1975 \times \frac{20}{100}$$

Total number of females in the age group $25 < x \leq 40$

$$= 1395 \times \frac{20}{100}$$

$$\text{Required percentage} = \frac{(1975 - 1395) \times \frac{20}{100}}{1395 \times \frac{20}{100}}$$

= 41.58%.