TS ICET 23rd May 2019 Shift-1

Analytical Ability

Instructions

In questions numbered 1 to 20, a question is followed by data in the form of two statements labeled as I and II. You must decide whether data given in the statements are sufficient to answer the questions. Using the data make an appropriate choice from(1) to (4) as perthe following guidelines:

Question 1

Howmany teachers teach Physics?

I. There are 11 teachers who teach Mathematics or Physics

II. Of these 11 teachers 7 teach Mathematics and 3 teach both Mathematics and Physics

- A if the statement I alone is sufficient to answerthe question.
- B if the statement II alone is sufficient to answerthe question.
- C if both the statements I and II are sufficient to answerthe question but neither statements aloneis sufficient.
- D if both the statements I and II together are not sufficient to answer the question and additional data is required.

Answer: C

Question 2

Is the line PQ parallel to X-axis? I. Coordinates of P are (4, 5) II. Coordinates of Q are (2, 3)

- A if the statement I alone is sufficient to answerthe question.
- **B** if the statement II alone is sufficient to answerthe question.
- C if both the statements I and II are sufficient to answerthe question but neither statements aloneis sufficient.
- D if both the statements I and II together are not sufficient to answer the question and additional data is required.
 Answer: C

Question 3

Whatis sumofinterior angles of the polygon? I. Polygonis a closed figure II. The polygonhas7 sides

- A if the statement I alone is sufficient to answerthe question.
- **B** if the statement II alone is sufficient to answerthe question.
- C if both the statements I and II are sufficient to answerthe question but neither statements aloneis sufficient.
- D if both the statements I and II together are not sufficient to answer the question and additional data is required.

Answer: D

Question 4

For integers a and b is $(a^3 + b^3)^{\frac{1}{3}}$ an integer? I. $a^3 + b^3$ is an even integer II. $a^3 + b^3$ is equal to the volume of a box with dimensions 12cm, 18cm and 125cm

- A if the statement I alone is sufficient to answerthe question.
- **B** if the statement II alone is sufficient to answerthe question.
- C if both the statements I and II are sufficient to answerthe question but neither statements aloneis sufficient.
- D if both the statements I and II together are not sufficient to answer the question and additional data is required.
 Answer: B

ABC Dissquare inscribed in a circle. What is the area of the square? I. Radius of that circle is 1 unit II. The centerofthat circle is (0. 0)

- A if the statement I alone is sufficient to answerthe question.
- B if the statement II alone is sufficient to answerthe question.
- C if both the statements I and II are sufficient to answerthe question but neither statements aloneis sufficient.
- D if both the statements I and II together are not sufficient to answer the question and additional data is required.
 Answer: A

Question 6

Amongthe five rivers $R_1, R_2, R_3, R_4 and R_5$ whichone is the short river? I. R_3 is the longest river and R_1 shorter than R_2 but longer than R_3 . II. R_4 is a little shorter than R_2 and a little longer than R_1 .

- A if the statement I alone is sufficient to answerthe question.
- B if the statement II alone is sufficient to answerthe question.
- C if both the statements I and II are sufficient to answerthe question but neither statements aloneis sufficient.
- D if both the statements I and II together are not sufficient to answer the question and additional data is required.
 Answer: C

Question 7

Is the positive integer 7 a multiple of 175? I. 125 divides n II. 35 divides n

- A if the statement I alone is sufficient to answerthe question.
- **B** if the statement II alone is sufficient to answerthe question.
- C if both the statements I and II are sufficient to answerthe question but neither statements aloneis sufficient.
- D if both the statements I and II together are not sufficient to answer the question and additional data is required.

Answer: C

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Whatis the integral value of x ?
I. 10 < x < 20
II. 10 < 9 x + 1 < 20
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- **A** if the statement I alone is sufficient to answerthe question.
- **B** if the statement II alone is sufficient to answerthe question.
- C if both the statements I and II are sufficient to answerthe question but neither statements aloneis sufficient.
- D if both the statements I and II together are not sufficient to answer the question and additional data is required.
 Answer: B

Question 9

Is N divisible by 48? I. $N=(a-4)((a-3)(a-2)(a-1), a\geq 5$ II. N is divisible by 8 and 6

- A if the statement I alone is sufficient to answerthe question.
- **B** if the statement II alone is sufficient to answerthe question.
- C if both the statements I and II are sufficient to answerthe question but neither statements aloneis sufficient.
- D if both the statements I and II together are not sufficient to answer the question and additional data is required.

Answer: D

Question 10

Are x and y rational numbers? I. x + yis a rational number II. x y is a rational number

- A if the statement I alone is sufficient to answerthe question.
- **B** if the statement II alone is sufficient to answerthe question.
- C if both the statements I and II are sufficient to answerthe question but neither statements aloneis sufficient.
- **D** if both the statements I and II together are not sufficient to answer the question and additional data is required.

Answer: D

Question 11

Is x = 93y6 divisible by 9 I. y is divisible by 9 II. y is divisible by 3

- A if the statement I alone is sufficient to answerthe question.
- **B** if the statement II alone is sufficient to answerthe question.

- c if both the statements I and II are sufficient to answerthe question but neither statements aloneis sufficient.
- D if both the statements I and II together are not sufficient to answer the question and additional data is required.

Answer: A

Question 12

At how manypoints do the twocircles intersect?

- I. The distance betweentheir centres is 15 cm
- II. The radii of the two circles are equal
- A if the statement I alone is sufficient to answerthe question.
- B if the statement II alone is sufficient to answerthe question.
- C if both the statements I and II are sufficient to answerthe question but neither statements aloneis sufficient.
- D if both the statements I and II together are not sufficient to answer the question and additional data is required.
 Answer: D

Question 13

What is the digit in the units place of n? I. $n = 6^k, k$ is an integer ≥ 1 II. $n = 8^k, k$ is an integer ≥ 1

A if the statement I alone is sufficient to answerthe question.

- B if the statement II alone is sufficient to answerthe question.
- **C** if both the statements I and II are sufficient to answerthe question but neither statements aloneis sufficient.
- D if both the statements I and II together are not sufficient to answer the question and additional data is required.
 Answer: A

Question 14

- If a and b are real numbers, is a > b? I. b is the real root of $x^3 1 = 0$
- II. a is the smaller of the roots of $\,x^2-1=0\,$
- A if the statement I alone is sufficient to answerthe question.
- **B** if the statement II alone is sufficient to answerthe question.
- C if both the statements I and II are sufficient to answerthe question but neither statements aloneis sufficient.
- **D** if both the statements I and II together are not sufficient to answer the question and additional data is required. **Answer:** C

Question 15

If $A\neq\phi$ and R is relation on set A, then is R Transitive? I. $R=A\times A$ II. $R\subseteq A\times A$

- A if the statement I alone is sufficient to answerthe question.
- **B** if the statement II alone is sufficient to answerthe question.
- C if both the statements I and II are sufficient to answerthe question but neither statements aloneis sufficient.
- D if both the statements I and II together are not sufficient to answer the question and additional data is required.
 Answer: A

Whatis the selling price of each article? I. The cost price of eacharticle is Rs.500 II. The loss on one article is equal to the gain on other article

- A if the statement I alone is sufficient to answerthe question.
- **B** if the statement II alone is sufficient to answerthe question.
- C if both the statements I and II are sufficient to answerthe question but neither statements aloneis sufficient.
- **D** if both the statements I and II together are not sufficient to answer the question and additional data is required. **Answer:** D

Question 17

Whatis the shortest distance between villages X and Y? I. Village X is to the north of Village Z at a distance of 35 km II. Village Y is at a distance of 20km from Z

- A if the statement I alone is sufficient to answerthe question.
- **B** if the statement II alone is sufficient to answerthe question.
- C if both the statements I and II are sufficient to answerthe question but neither statements aloneis sufficient.
- D if both the statements I and II together are not sufficient to answer the question and additional data is required.
 Answer: D

Question 18

Howis Y related to X? I. Y is the spouse of a parent of X II. X is the brother of Y's daughter

- **A** if the statement I alone is sufficient to answerthe question.
- **B** if the statement II alone is sufficient to answerthe question.
- **C** if both the statements I and II are sufficient to answerthe question but neither statements aloneis sufficient.
- D if both the statements I and II together are not sufficient to answer the question and additional data is required.

Answer: D

X and Yare in partnership business for one year. At the end of the year, a profit of Rs.90.000 was earned. What is Y's share in the profit?

- I. Y invested Rs.1.40,000
- II. X withdraw his capital after 9 months
- **A** if the statement I alone is sufficient to answerthe question.
- B if the statement II alone is sufficient to answerthe question.
- C if both the statements I and II are sufficient to answerthe question but neither statements aloneis sufficient.
- **D** if both the statements I and II together are not sufficient to answer the question and additional data is required.

Answer: D

Question 20

Whatis the relative speed of the boy swimming against the current? I. Speed of the boy instill waters is 5 kmph II. Speed of the current in 2 kmph

- A if the statement I alone is sufficient to answerthe question.
- **B** if the statement II alone is sufficient to answerthe question.
- C if both the statements I and II are sufficient to answerthe question but neither statements aloneis sufficient.
- D if both the statements I and II together are not sufficient to answer the question and additional data is required.

Answer: C

Instructions

In each of the questions. A sequence of numbers or letters that follow a definite pattern is given. Each question has a blank space. This has to be filled by the correct answer from the four given options to complete the sequence without breaking the pattern.

Question 21

- ACE : FHJ :: LNP:_____
- A QSV
- B QTV
- C RUW
- D RVX

Answer: A

Question 22

Telangana : Hyderabad: : Jhakhand:_____

- A Patna
- B Hazaribagh

c Ranchi

D Lucknow

Answer: C

Question 23
:CXDW:: EVFU: GTHS
A AYBZ
B BZAY
C AZABY
D BYZA
Answer: C
Question 24
A9Z: B7Y:: : D3W
A C5X
B X5C
C E1X
D C4X
Answer: A
Question 25
P U
н : :: С : Т
A 10
B 2
c ¹¹ ₁₉
D 17
Answer: B

Question 26

_____:L3M4: : P5Q6: R7S8

A J1K2

B K2J1

- **c** J2K3
- **D** K3J1

Answer: C

Question 27

GAK : 7A11: :PAT:_____

A 15A19

B 16A20

C 17A21

D 18A22

Answer: B

Question 28

LAKE:____: : MILK : HDGF

A HWGA

B HVFB

C GUEY

D GVFZ

Answer: D

Question 29

AROUND:____: : POLITY : SROLWB

A DURXQG

B DVSYPH

C EURXQG

D EWTZRI

Answer: A

Question 30

20736: 144::_____: 288

A 82944

B 74886

C 72992

D 69886

Answer: A

Instructions

In the following questions pick the odd thing out:

Question 31

A $x^2 - 4x + 4 = 0$

B $x^2 - 6x + 9 = 0$

c $x^2 + 8x + 16 = 0$

D $x^2 + 10x + 18 = 0$

Answer: D

Question 32

A	$\begin{bmatrix} 1\\ 2\\ 0 \end{bmatrix}$	$2 \\ 4 \\ 0$	$\begin{array}{c}3\\6\\1\end{array}$
В	$\begin{bmatrix} 2\\0\\4 \end{bmatrix}$	3 1 6	$\begin{bmatrix} 4 \\ 6 \\ 8 \end{bmatrix}$
С	$\begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix}$	0 1 0	$\begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix}$
D	$\begin{bmatrix} 1\\ 1\\ 0 \end{bmatrix}$	2 0 0	$\begin{bmatrix} 3 \\ 6 \\ 1 \end{bmatrix}$

Answer: D

Question 33

A Fish

B Frog

C Crocodile

D Tortoise

Answer: A

Question 34

A EVHS

- B DWFU
- C HSKP
- D KONN

Answer: B

Question 35

- A Range
- B Median
- C Standard Deviation
- D Coefficient

Answer: B

Instructions

Each of the questions follow a definite pattern. Observe the same and fill in the blanks withsuitable answers.

Question 36

 $1,2, \begin{smallmatrix} 27\\8\\,4, \:\: {}^{125}_{32}$

A
$$\frac{25}{8}$$

B $\frac{27}{8}$

C 6

D $\begin{array}{c} 175 \\ 64 \end{array}$

Answer: A

Question 37

(6, 8, 7), (10, 12, 17), (14, 16, 15),, (22, 24, 23)

- **A** (18, 20, 19)
- **B** (17, 19, 18)
- **C** (16, 18, 17)
- **D** (15, 17, 19)

Answer: A

Question 38

 $22\frac{2}{9}, 25, 28\frac{4}{7}, 33\frac{1}{3}, \dots$

- **A** 35^{1}_{3}
- **B** 36^{1}_{6}
- **C** 40
- **D** 41

Answer: C

Question 39

256, 4, 196, 16, 144, 36, 100, 64,

A 96

- **B** 72
- **C** 64
- **D** 32

Answer: C

Question 40

1	1	1	5	5	1		
$^{-6},$	3,	$1_{3},$	26,	46,	$7_{3},$	•••••	

A 8^{7}_{6}

B 10^{1}_{6}

- **C** 11
- **D** 10^{1}_{3}

Answer: D

Question 41

3, 45, 35, 63, 99, 143,

A 164

- **B** 178
- **C** 192
- **D** 195

Answer: D

Question 42

2, 10, 30, 68, 130, 222,

- **B** 343
- **C** 303
- **D** 290

Answer: A

Question 43

24, 35, 48, 63, 80, 99,

- **A** 118, 136, 164
- **B** 126. 144, 169
- **C** 120. 143, 168
- **D** 124, 148, 196

Answer: C

Question 44

(11, Z, 13) : (15, X, 17) : (19, V, 21) : (23, T, 25) : (27, R, 29) :

- **A** (28. Q, 30)
- **B** (31, P,33)
- **C** (28, S, 30)
- **D** (31, S, 33)

Answer: B

Question 45

IJLO, GHJM, EFHK. CDFI, ABDG,

- A ZXCT
- B YZBE
- C XADK
- D WBEL

Answer: B

Instructions

The results of a study conducted on the Academic background of students (in thousands) who took admission into MBA/MCA in the Six Years 2013 to 2018 in a University is given in the following table. Based on this data. answer the questions

Year/Faculty	Arts	Commerce	Science	Engineering	Others
2013	4	8	16	5	8
2014	8	12	20	10	5
2015	8	12	25	10	1
2016	10	10	15	10	5
2017	10	15	14	51	6
2018	9	7	10	10	8

What is the percentage of the science students who took admission into these programmes inall the years put together?

A 25

B 30

- **C** 33^{1}_{3}
- **D** 42^{1}_{2}

Answer: A

Question 47

What is the approximate percentage of students from Arts who took admission into the programme in the year 2016 when compared to all the Arts students admitted inall the years put together?

- **A** 19.1
- **B** 19.8
- **C** 20.4
- **D** 21.1

Answer: C

Question 48

What is the average number of commerce students per year who took admission into this programme?

- **A** 10^{1}_{3}
- **B** 10^{2}_{3}
- **C** 11
- **D** 113^{1}
 - Answer: B

Instructions

The following Pie Charts show the revenue and expenditure of a public sector undertaking under 5 major heads of account. Based on this data, answer questions



In the Pie chart for the Revenue, what is the difference between the sectorial angle of odd and even heads of accounts?

- A 242°
- **B** 252°
- **C** 232°
- D 212°

Answer: B

Question 50

If the total expenditure is Rs.5000 crores. whatis the difference between the expenditure (in Rs. crores) under heads D and E puttogetherand that of the rest the heads together?

- **A** 2500
- **B** 2200
- **C** 2000
- **D** 1850

Answer: C

Question 51

If the Revenue under head II is Rs.25 crores. then the total revenue under the heads of I and IV together? (in crores of Rs)

- **B** 235
- **C** 215
- **D** 225

Answer: D

Question 52

In a particular year the expenditure under the head E is Rs.1240 Crores. Then in the same year, the difference in the expenditure under the heads B and D (in Rs. crores) is

A	140	
В	170	
С	130	
D	120	
	Answer: A	

Question 53

What is the percentage of the expenditure under the head A. when compared to the expenditure on the rest of the heads?

A	10		
В	11		
С	$11\frac{1}{9}$		
D	$11\overset{3}{9}$		
Answer: C			

Instructions

In the following venn diagram square represents Females, triangle represents corporate managers, circle represents IITians and rectangle represents MBAs



What is the number of female corporate managers who did MBA?

A 5

- **B** 23
- **C** 20
- **D** 15

Answer: B

Question 55

How many male IITians are there?

A	A 80	
B	B 60	
С	C 75	
D	D 35	
	Answer: C	

Instructions

The English Alphabet, a code is designed by the following rules:

1. The vowels are rotated cyclically by moving each vowelto its right by one place.

- 2. Each consonant from ${\sf B}$ to ${\sf M}{\sf is}$ moved to the mght by one place cyclically.
- 3. Each consonant from N to Z is moved to left by one place cyclically.

4. The reverse process is followed for decoding.

Question 56

Whatis the code for 'YADADRI'?

- A XEFEFQO
- **B** ZEEFFPU
- C XEFGFRI
- D ZFFHFSA

Answer: A

Question 57

Whatis the code for 'EMAIL'?

- A EBIOA
- B IBEOM
- C IABEK

D EABIL

Answer: B

Question 58

Whatis the code for the word 'BUCKET'?

- A AABJIS
- **B** CADLIS
- C CABLIU
- D DABTOU
 - Answer: B

Question 59

Which word is coded as 'FUBEOZ'?

- A REMAIN
- **B** STRAIN
- C COMEDY
- D DOMAIN

Answer: D

Question 60

Which one of the following is coded as 'NUMODX'?

- A POLITY
- **B** POLICY
- C POLICE
- D MALICE

Answer: B

Instructions

A wordor a group ofletters to be coded or decoded based on the certain codes. Using the information, answer the questions.

Question 61

In a certain code. if the word CRIME is coded as 'APGKC', then the code for 'QUICK' is.

- A OTHBJ
- B PUICK
- C PRICE
- D OSGAI

In a certain code, if 'BEAT' is coded as 'ADZS' then the code for 'SONAR'is

- A RLMYP
- B RNMZQ
- C TPOBS
- D TOBPS

Answer: B

Question 63

If 'CARTOON' is coded as 'NOOTRAC' then which of the following is coded as 'DETIMIL'?

- A TENDERS
- **B** LISTENS
- C TENDRIL
- D LIMITED
 - Answer: D

Question 64

If 'CUPBOARD' is coded as 'UCBPAODR' then the code for 'ELEVATER' is

- A LAVERATE
- **B** LEVETARE
- **C** LAVETEAR
- **D** LEAVETRA
 - Answer: B

Question 65

If 'WATER' is coded as 'XAUES' then the code for 'MOBILE' is

- **A** LOATKE
- **B** NOCIME
- C NPCJNF
- D LPCINE
 - Answer: B

Instructions

For the following questions answer them individually

Question 66

If today is Sunday then what dayit was in the weak 124 days ago?

- A Monday
- B Tuesday
- C Thursday
- **D** Friday

Answer: B

Question 67

At 5:15 p.m the angle between the hours hand and the minute's hand of wall clock (in degrees) is

A $59^{\frac{1}{2}}$ **B** $64^{\frac{1}{2}}$ **C** $67^{\frac{1}{2}}$ **D** $72^{\frac{1}{2}}$ **Answer:** C

Question 68

A Clock gains 10 minutes in 24 hours. If the clock is set at the right time at 8:00 a.m on Sunday, the actual tume when the clock shows 1:00 p.m on Monday?

- A 1:05 p.m
- **B** 12:50 p.m
- **C** 12:45 p.m
- **D** 12:48 p.m

Answer: D

Question 69

In a family B is the father of A; C is the wife of B; D is the mother of C and E is the husband of D. Then A is related to E as:

- A Father
- B Mother
- C Son
- D Grandson

Answer: D

Question 70

A family has a man. his wife. their four sons and their wives. The first son has three sons and one daughter. the second son has two sons and three daughters. the third and fourth sons have three daughters each. The total number of female members in the whole family is.

- **A** 12
- **B** 15
- **C** 11
- **D** 9

Answer: B

Question 71

A superfast express travelling at 100 kmph takes 2 hours more than another train travelling at 120 kmph to cover the distance between the stations (in kms). Then the distance between the stations (in kms)is.

- **A** 1200
- **B** 800
- **C** 1000
- **D** 600

Answer: A

Question 72

A, B, C, D, E, F and G are sitting around a circular table and facing the centre: G is second to the left of C, C is to the immediate left of F, A is third to the left of E, B is between D and E. Which of the following is true?

- A C is fourth to the left of B
- B A is the immediate right of C
- C D is second to the left of E
- **D** B is second to the right of G

Answer: A

Question 73

If * is defined by $a*b=a^3+b^3-3ab$ for $a,b\epsilon R$, then $\overset{(1*2)*(1*2)}{(1*1)*(1*1)}=$

- **A** $\frac{27}{5}$
- **B** $\frac{16}{5}$
- **c** $-\frac{27}{5}$
 - -

If $x\downarrow y=(x+y)+(x-y)^2$ and $x\uparrow y=(x+y)^3-(x-y)^3$ then the value $\stackrel{(0\downarrow1)\uparrow(0\downarrow1)}{(1\uparrow2)\downarrow(1\uparrow2)}=$ **A** $\frac{8}{7}$ $^{15}_{7}$ В 14С 9 13D 8 Answer: A **Question 75** For ab \neq 0. if * is defined by $a*b=\overset{a^2+b^2}{ab}$ then $\overset{(1*2)*(2*1)}{(1*3)+(3*1)}=$ **A** ${}^{1}_{5}$ **B** $\begin{array}{c} 3\\ 10 \end{array}$ $\frac{5}{4}$ С $\frac{20}{3}$ D Answer: B

Mathematical Ability

Instructions

For the following questions answer them individually

Question 76

If $a=2^x, b=4^y, c=8^z$ and $a^{yz}.b^{zx}.c^{xy}=4^6$, then xyz=....

A 3

B 1

C 4

D 2

Answer: D

Explanation: given that

 $a = 2^x, b = 4^y, c = 8^z$ and $a^{yz}.b^{zx}.c^{xy} = 4^6$ put the value of a,b and c $2^{xyz}.4^{yzx}.8^{zxy} = 4^6$ $2^{xyz}.4^{yzx}.4^{yzx}.4^{yzx}.4^{yzx}.4^{yzx}.4^{yzx}.4^{zxy} = 4^{6}$ $3^{xyz} = 4^{6}$ $3^{xyz} = 6$ xyz = 2 **Answer**

Question 77

 $x^{x}=(x + x)^{6x} \in x$

A 63

B 64

C 81

D 84

Answer: C

Explanation:

given that

```
x^{x}=(x\x)^{6x}
```

when base are same power will be equal

X^3x\2 = (x^3\2)^6x

x^3\2 = (3\2)6x

x = 81 Answer

Question 78

```
$$A + B + C = 427, 3A = 4B = 7C \Rightarrow A =$$
```

A 147

B 196

C 84

D 61

Answer: B

Explanation:

given that

\$\$A + B + C = 427, 3A = 4B = 7C \Rightarrow\$\$

 $B = A3 \setminus 4$ and $C = A3 \setminus 7$ put the value

A + A3\4 + A3\7 = 427

(28A + 21A + 12A)\28=427

A = 196 **Answer**

There are 50 paise and 25 paise coins in a bag whose value is Rs.45. If the total number of coins is 100, then the number of 50 paise coins is

A 70

- **B** 60
- **C** 80
- **D** 85
 - Answer: C

Explanation:

let we have x number of 50 paise cion and y number of 25 paise coin

then given

 $x1\2 + y1\4 = 45$ and x + y = 100

on solving both equation we get

x = 80 and y = 20 **Answer**

Question 80

 $\times {10 + 2\sqrt{21}} - \times {12 + 2\sqrt{35}} - \times {13 + 2\sqrt{15}} = \times {13 + 2\sqr$

- A \$\$\sqrt{7}\$\$
- **B** \$\$\sqrt{5}\$\$
- **C** \$\$\sqrt{3}\$\$
- **D** 0

Answer: D

Explanation:

given that

 $= \${frac{2}(sqrt{10 + 2}sqrt{21})} - frac{1}(sqrt{12 + 2}sqrt{35})} - frac{1}(sqrt{8 + 2}sqrt{15}))$

put the value in the equation we get

= 0 Answer

Question 81

 $x = \frac{2}{y} + \frac{7}{2} - \frac{7}{x} =$

- A \$\$\sqrt{14}\$\$
- **B** \$\$2 + \sqrt{14}\$\$
- C \$\$4\sqrt{14}\$\$

D \$\$8\sqrt{14}\$\$

Answer: D

Explanation:

given that

Question 82

What is the remainder when \$\$2^{45}\$\$ is divided by 5?

- **A** 1
- **B** 2
- **C** 3
- **D** 4

```
Answer: B
```

Explanation:

given that

\$\$2^{45}\$\$\5 = 2 \$\$\times\$\$ \$\$2^{44}\$\$\5 = 2\$\$\times\$\$ \$\$2^{4}\$\$ \$\$\times\$\$ \$\$2^{11}\$\$ \5

```
$$2^{4}$$ $$\times$$ $$2^{11}$$ \5 = 1
```

then

2 is the remainder Answer

Question 83

What is the total number of positive divisors of 12600?

A 70

- **B** 72
- **C** 74
- **D** 76
 - Answer: B

Explanation:

Setup the equation for determining the number of factors or divisors.

The equation is= d(n) = (a + 1)(b + 1)(c + 1)(d + 1)

Where d(n) is equal to the number of divisors of the number and a, b, etc. are equal to the exponents of the prime factorization.

Now substitute the letters in the equation with the the exponents of your prime factorization and then solve to calculate the total number of divisors.

 $12,600 = 2^3 \times 3^2 \times 5^2 \times 7^1$ d(n) = (a + 1)(b + 1)(c + 1)(d + 1) d(12600) = (3 + 1)(2 + 1)(2 + 1)(1 + 1) d(12600) = (4)(3)(3)(2) d(12600) = 72 Answer

Question 84

The G.C.D of two numbers is 42 and their L.C.Mis 1260. If one of the numberis 210, the other number is

- **A** 245
- **B** 250
- **C** 252
- **D** 258
 - Answer: C

Explanation:

let the numbers are $\$N_{1}$ and $\$N_{2} = 210$

then we know that

\$\$N_{1}\$\$ \$\$\times\$\$ \$\$N_{2}\$\$ = G.C.D \$\$\times\$\$ LCM

put the value

\$\$N_{1}\$\$ \$\$\times\$\$ = (42 \$\$\times\$\$ 1260)\210

\$\$N_{1}\$\$ \$\$\times\$\$ = 252 **Answer**

Question 85

If the G.C.D of 28 and 49 is expressed as 28x + 49y, then a pair (x , y) =

- **A** (-1, 1)
- **B** (1, -1)
- **C** (-1, 2)
- **D** (2, -1)

Answer: D

Explanation: we know the G.C.D. of 28 and 49 is = 7

then we have given

28x + 49y = 7

but trial and error we have

28.2-49 = 7

7 = 7

X = 2 and y= -1 **Answer**

Question 86

What is the value of the rational number which is the sum of the recurring decimals: $\$0.\eqref{7} + 0.\eqref{7} + 0.\eqref{8}$

A \$\$2\frac{1}{9}\$\$

- B \$\$2\frac{1}{3}\$\$
- C \$\$3\frac{1}{9}\$\$

D \$\$3\frac{1}{3}\$\$

Answer: B

Explanation:

given that

= \$\$0.\overline{6} + 0.\overline{7} + 0.\overline{8}\$\$

 $= (6 \setminus 9) + (7 \setminus 9) + (8 \setminus 9)$

= 21\9

7\3 Answer

Question 87

\$\$8\left[24 - \left\{25 - (17 - \overline{4 + 7}) + 5 \right\} + 2\right] =\$\$

A 0

B 12

C 16

```
D 20
```

```
Answer: C
```

Explanation:

given that

= \$\$8\left[24 - \left\{25 - (17 - \overline{4 + 7}) + 5 \right\} + 2\right] \$\$

- = \$ \left[24 \left\{25 (17 9) + 5 \right\} + 2\right] \$\$
- = 8[24 {25 1} + 2]
- = 8[24 24 + 2]
- = 8\$\$\times\$\$2
- = 16 Answer

Question 88

The ascending order of the following numbers is \$\$a = 4\sqrt{2}; b = 2\sqrt{5}; c = 3\sqrt{2}; d = 2\sqrt{3}\$\$

- A c, b, d, a
- **B** d, b, c, a
- **C** c, d, b, a
- **D** d, c, b, a
 - Answer: D

Explanation:

we knoe the value of \$ sqrt{2}\$ = 1.414, \$ sqrt{3}\$ = 1.7304, \$ sqrt{5}\$ = 2.23606 put the value we get the sequence d,c,b,a **Answer**

Which of the following statements is true?

- **A** \$\$6\sqrt{5} > 4\sqrt{11} > 5\sqrt{6}\$\$
- **B** \$\$6\sqrt{5} > 5\sqrt{6} > 4\sqrt{11}\$\$
- **C** $$$4\sqrt{11} > 6\sqrt{5} > 5\sqrt{6}$$$
- **D** \$\$4\sqrt{11} > 5\sqrt{6} > 6\sqrt{5}\$\$

Answer: A

Explanation:

we know that the value of \$ = 2.23606 , \$ = 2.4494 , \$ = 3.3166 then we get

\$\$6\sqrt{5}\$\$ > 4\$\$\sqrt{11}\$\$> 5 \$\$\sqrt{6}\$\$ **Answer**

Question 90

Due to reduction of \$\$6\frac{1}{4}\%\$\$ in the price of onion a person was able to buy 1 kg more for Rs. 120. The original price of onion per kg in Rs. is

A 10

- **B** 9
- **C** 8
- **D** 7
 - Answer: C

Explanation:

let the original price of the onion is X Rs

then reduced price is = $X - 25X \setminus 400 = 15X \setminus 16$

it means now he able to buy 16 kg instead of 15 kg due to reduction

so the original price is = 120\15 = 8 Rs\kg Answer

Question 91

5% of income of A is equal to 15% income of B and 10% income o fB is equal to 20% income of C. If the income of C is ₹ 20,000, then the total income of A, B and C (in thousands if Rs.) is

Α 60 В 120 С 140 180 D Answer: D **Explanation:** let the income of A = x Rs , B = y RS and C = 20000 Rs given that x \$\$\times\$\$5%} = y \$\$\times\$\$ 15% equation 1 and 10% \$\$\times\$\$ = 20% \$\$\times\$\$ 20000 equation 2 solve eq 2 we get y = 40000 Rs

put value of y in eq 1 we get x= 12000 Rs

so the total income is = 120000 + 40000 + 20000 = 180000 Rs Answer

Question 92

The cost price of 20 books is equal to the sale price of 16 books. What is the outcome of the transaction?

- A 15% loss
- B 25% profit
- C 15% profit
- D 25% loss

Answer: B

Explanation:

Let us assume that cost price of one Book is Rs1

So, The Cost price of 20 Books is = Rs 20

Then,

Selling price of 16 Books = cost price of 20 Books => Rs 20

Now,

SP>CP

Thus there will be profit

Profit = 20-16 => 4

Profit % = 4/16 × 100 = 25 % **Answer**

Question 93

Anarticle is sold for a profit of 20%. Had it been sold for aprofit of 25% it would have fetched ₹.50 more. The cost price of the article (in ₹) is

A 750

B 800

- **C** 900
- **D** 1000

Answer: D

Explanation:

let the cost price of the article is x Rs

then 120% of x = 1.2x

and 125% of x = 1.25 x

then in given in question 1.25x - 1.20x = 50

0.05x = 50

x = \$\$\frac{50}{5}\$\$ \$\$\times\$\$ 100

x = 1000 Rs Answer

A and B entered into a business with capital ₹80.000 and ₹1,20,000 respectively. After 4 months each invested ₹20,000 more. The difference in the share of their profits in the year end profit is ₹68,000 is (in Rs) is

A 8,000

- **B** 10,000
- **C** 12,000
- **D** 16,000

Answer: C

Explanation:

A and B starting capital respectively 80000 Rs and 120000 Rs

and total capital of A = 80000\$\$\times\$\$ 4 + 80000 \$\$\times\$\$ 8 = 320000 + 800000 = 11200000

total capital of B = 1200000\$\$\times\$\$ 4 + 1200000 \$\$\times\$\$ 8 = 480000 + 1120000 = 16000000

then A: B = 11200000: 1600000

A:B = 112:160 = 7:10

given that X = 68000\17 = 4000

then the difference in the profit = (10 - 7) \$\$\times\$\$ 4000 = 12000 Rs Answer

Question 95

X and Y invested in a business with their capitals respectively in the ratio of 3:2. After deducting 10% of the total profit for taxes if Ys share of profit is Rs. 6.480, then the total profit (in thousandsof Rs.) is

Α	18

- **B** 36
- **C** 42

D 56

Answer: A

Explanation:

let the total profit is = x Rs

then after the 10% deducting the taxes the profits is = 0.9x

then the ratio of given profit in between A and B = 3 : 2

then in according to the question

0.9x \$\$\times\$\$ \$\$\frac{2}{5}\$\$ = 6480

x = 72 \$\$\times\$\$250

x = 18000 Rs Answer

Question 96

Two pipes A and B can fill a huge tank in 6 hours and 8 hours respectively. If both the pipes are opened simultaneously and the B is tumed off after \$\$1\frac{1}{2}\$\$ hours then the time required for the tank to be full (in hours) is

A 6

- **B** \$\$5\frac{5}{8}\$\$
- **C** 5
- **D** \$\$4\frac{7}{8}\$\$

Answer: D

Explanation:

given that

pipes A and B can fill a tank in 6 hours and 8 hours respectively

so the tank capacity is LCM of 6 and 8 = 24 efficiency of A is = 24\6 = 4 efficiency of B is = 24\8 = 3 together they can fill in 1 hour = 7 then in 1.5 hour is = 10.5 then the remaining part is = 13.5 so time require to A to fill that = $13.5\4 = 27\8$ so the total time is = $27\8 + 3\2 = \$\4\7\8\$ Answer Question 97

If a pump takes 6 hoursto fill \$\$\frac{3}{7}th\$\$ of a huge tank then total time required to completely fill the tank in hours is

- **A** 12
- **B** 13
- **C** 14
- **D** 15

Answer: C

Explanation:

in question given that in 6 hours the tank is fill = \$ frac{3}7}th\$\$

so the time required to fill the full tank = $6\$ hour

= 14 hour Answer

Question 98

A person P is travelling at 72 kmph while is travelling at 25 meters per second. What is the difference in their speeds in meters per second?

- A \$\$1\frac{1}{2}\$\$
- **B** 2
- **C** 3
- **D** 5
 - Answer: D

Explanation:

person speed in first case in meter \second is = 72\$\times\$5\18 = 20 m\sec

and given that in second case the person speed is = 25 m\sec

so the difference is = 25 - 20 = 5 m\sec Answer

Question 99

A person takes 6 hours to reach a place. If he reduces his speed by \$\$\frac{1}{3}\$\$ then he travels 10 kmless in that time. His speed in kmph is

A 6

B \$\$5\frac{1}{2}\$\$

C 5

D \$\$4\frac{9}{10}\$\$

Answer: C

Explanation:

let the distance to travel of the person is = x km

then in given in the question \$ Rightarrow \$ x\3 = 10

```
x = 30 km
```

then the speed = (distance \time) = 30 \ 6 = 5 kmph Answer

Question 100

Of the two workers 4 and B. the worker 4 works twice as fast as B. If B works alone the work could be completed in 12 days. If both A and B work together the number of days in which the work can be completed is

A 4

B 5

C \$\$5\frac{1}{2}\$\$

D 6

Answer: A

Explanation:

given that B to complete the work = 12 days

so A to finish the work = 12\2 = 6 days (A is twice faster than B so he require half the time as compared to B)

SO together A and B can finish the work in = $(6 \$\times\$ 12)(6+12) = 4$ days Answer

Question 101

Three workers can individually complete a work in 7. 14 and 28 days respectively. If all the three work together the number of days needed to complete the same work is

A 4

B 5

c \$\$5\frac{1}{2}\$\$

D 6

Answer: A

Explanation:

given that the number of days for individual require are = 7,14 and 28 days respectively

then the total work is LCM of all of them = 56

each have individual efficiency = $56\sqrt{7}$, $56\sqrt{14}$, and $56\sqrt{28}$ = 8, 4 and 2

so they together finish the work = 56(8+4+2) = 4 days

Question 102

The dimensions of a rectangular filed are 60 meters and 80 meters. Four cowsare tied at the four corners of the field with ropes of lengths 10, 12, 14 and 16 meters respectively. The area of the grass that cows could eat in sq meters is

- A \$\$168 \pi \$\$
- **B** \$\$172 \pi \$\$
- **C** \$\$174 \pi \$\$
- **D** \$\$178 \pi \$\$

Answer: C

Explanation:

let the rectangular length I = 80 m. and width w = 60 m.

then the area of the rectangular length = 4800 sq. m.

and radius of the quadrant $\$r_{1}$, $\$r_{2}$, $\$r_{3}$, and $\$r_{4}$, will be respectively 10, 12, 14 and 16 m

= \$\$\pi\$\$ \$\$\times\$\$ \$\$10^{2}\$\$ \4 + \$\$\pi\$\$ \$\$\times\$\$ \$\$12^{2}\$\4 + \$\$\pi\$\$ \$\$\times\$\$ \$\$14^{2}\$\4 + \$\$\pi\$\$ \$\$\times\$\$ \$\$14^{2}\$\4

= \$\$\pi\$\$ \4 \$\$\times\$\$ (100 + 144 + 196 + 256)

= 174 \$\$\pi\$\$ **Answer**

Question 103

The length of a roomis 5.5 meters and its width is 3.75 meters. Find the cost (in ₹) of paving the floorat the rate of ₹ 800 per square meters.

```
A 15,000
```

- **B** 15,500
- **C** 15,600
- **D** 16,500

Answer: D

Explanation: let the lenth I = 5.5 m. and w = 3.75 m.

then the area of the room = I\$\$\times\$\$w = 5.5\$\$\times\$\$3.75

then the total cost of paving the floor = 20.625\$\$\times\$\$800 = 16500 Rs. Answer

Question 104

What is the volume of a cube (in cu.cm) whosetotal surface area is 384 sq. cms?

A 512

B 729

- **C** 1000
- **D** 1331
 - Answer: A

Explanation:

let the side of cube is = a

then wholesale total area = 6 \$\$r^{2}\$\$

given that wholesale total area = 384 sq. cms

then

6 \$\$a^{2}\$\$ = 384

a = 8

then we know that the volume of the cube = \$\$a^{3}\$\$ = 512 sq. cms Aanswer

Question 105

A cylinder and a cone have the same height and the same radius of the base. The ratio of the volumes of the cone and cylinder is

٨	1	•	2	
A		•	0	

B 2:3

- **C** 3:4
- **D** 4:3
 - Answer: A

Explanation:

we know that

the volume of the cone is = 1\3 \$\$\times\$\$ \$\$\pi\$\$ \$\$\times\$\$ r^2 \$\$\times\$\$ h and

volume of the cone \ volume of the cylinder = 1\3 \$\$\times\$\$ \$\$\pi\$\$ \$\$\times\$\$ r^2 \$\$\times\$\$ h \ \$\$\pi\$\$ \$\$\times\$\$ h $\$

volume of the cone $\$ volume of the cylinder = 13 **Answer**

Question 106

The area of square field is \$\$8450 m^2\$\$. The time taken by a person to cross the field diagonally with a speed of 3 kmph.(in minutes) is

- A \$\$\frac{11}{5}\$\$
- **B** \$\$\frac{13}{5}\$\$

c ³

D \$\$\frac{17}{5}\$\$

Answer: B

Question 107

The perimeter of a semi-circle is 396 cm. Thenits diameter (in cm) 1s:

Δ	36
~	00

B 72

- **C** 77
- **D** 154

Answer: D

Explanation:

given that the perimeter of the semicircle = 396 cm

we know that the perimeter of the semiicircle = (1 + \$)p

equate both the value

(1 + \$)pi\$2) $\$times{d}$ = 396 cm put the value \$pi

 $(1 + 22 \ 14)$ \$\times{d}\$\$ = 396

d = 154 cm Answer

Question 108

If the radius of a circle is increased by 10%, then the percent increase in its area is

Α	1	9%	

B 22%

- **C** 20%
- **D** 21%

Answer: D

Explanation:

let the radius of the circle is r then area = \$\$\pi\$\$ \$\$r^{2}\$\$

then in given in the question the new radius is = 1.1r

then the new area = \$\pi\$ (1.1r){2}\$

= 1.21\$\$\pi\$\$ \$\$r^{2}\$\$

then the % change in area = (1.21\$\$\pi\$ $\$r^{2}\$ - \$\$\pi\$ $\$r^{2}\$ + \$\$\pi\$ $\$r^{2}\$

then the % change in area = 21% Answer

Question 109

 $\left| x \right| < 1 \in \mathbb{R} \$

- **A** (-4, 6)
- **B** (1, 6)
- **C** (1, 5)
- **D** (-4, 5)

```
Answer: C
```

Explanation:

We know that if |a| = b then a = \$\$\pm\$\$b

- |x 3| = 2
- x = 2 \$\$\pm\$\$3

x = 5 and 11 here x = 5, 1

and

|x - 1| = 5 in that equation x = 6 and 4 both are lie 1< X < 5 so x = 1, 5 Answer

Question 110

If \$\$993 = r(mod 23)\$\$ and \$\$0 \leq r \leq 22\$\$. then \$\$r =\$\$

```
A 3
```

- **B** 4
- **C** 13
- **D** 14

Answer: B

```
Question 111
```

If p and q are statements, then "\$\$\sim p \Rightarrow p \wedge q\$\$" is true whenever

- A q is true
- B p is true, q is false
- C p is true
- D p is false, q is true
 - Answer: C

Explanation:

If p and q are statements, then " $\$ may be a p $\$ p $\$

let solve that through the navigation of " $\$ " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " $\$ navigation of " \ navigation of " $\$ navigation of " $\$ navigation of " \ navigation of " \ navigation of " \ navigation of " $\$ navigation of " \ navigation of

 $p \rightarrow (p \vee \neg q)$ -(p \rightarrow (p \vee \neg q)) \(\therefore\color - (p \rightarrow q) = p \wedge \sigma q) = p \(\lambda \sigma (p \neq \sigma) = p \lambda (\sigma \neq \sigma) = t \text{Answer}

For any two statements p, q the statement $\hat{p} = \frac{1}{100} \left(\frac{1}{100} + \frac{1}{100} + \frac{1}$

- A p is false, q is false
- B p is true, q is false
- **C** p is true, q is true
- D p is false, q is true

Answer: B

Explanation:

 $\begin{array}{ccc} p\$\$ \text{rightsquigarrow}\$\$q\$ \text{rightsquigarrow}\$\$p\$\$ \text{Rightarrow}\$\$qp \Rightarrow \sim p(p\$\$\text{rightsquigarrow}\$q \\ \text{TF} & \text{T} & \text{F} & \text{F} \\ \text{FT} & \text{F} & \text{T} & \text{F} & \text{F} \\ \text{From the above table, the truth value of the expression} (\sim p \Rightarrow p) \land (p \Rightarrow \sim p) \text{ is always F. Hence it's a contradiction. so the p is always true and q is false$ **Answer** $\\ \end{array}$

Question 113

If A, B, C are subsets of a set X and \$\$A^1 = X - A\$\$, then \$\$\left(A \cup \left(B^1 \cap C^1\right)\right) =\$\$

Α	\$\$\left(A^1	\cup	\left(B	\cup C	\right)\rig	ght) =\$\$
---	---------------	------	---------	--------	-------------	------------

- **B** \$\$\left(A \cap \left(B^1 \cup C^1\right)\right) =\$\$
- C \$\$\left(A \cup \left(B^1 \cap C^1\right)\right)\$
- D \$\$\left(A \cap \left(B \cup C\right)\right) =\$\$

Answer: C

Explanation: \$\$A^1 = X - A\$\$, then \$\$\left(A \cup \left(B^1 \cap C^1\right)\right) = \$\$

Let $S\{x|x \in A - (B \cap C)\}S\{x|x \in A - (B \cap C)\}$ Let $Q\{y|y \in (A - B) \cup (A - C)\}Q\{y|y \in (A - B) \cup (A - C)\}$ All $x \in Ax \in A$ and $x \notin B, Cx \notin B, C$. All $y \in Ay \in A$ and $y \notin B, Cy \notin B, C$. Because all xx fit the definition of QQ then we say $S \subseteq QS \subseteq Q$ Because all yy fit the definition of SS then we say $Q \subseteq SQ \subseteq S$ Since $S \subseteq QS \subseteq Q$ and $Q \subseteq SQ \subseteq S$ then $S = Q \Longrightarrow A - (B \cap C) = (A - B) \cup (A - C)S = Q \Longrightarrow A - (B \cap C) = (A - B) \cup (A - C)$

But then quickly realized it was wrong because the xx from set SS must meet the following criteria:

\$\$\left(A \cup \left(B^1 \cap C^1\right)\right) \$ Answer

Question 114

A relation R defined on a non-empty set A is called anti-symmetric if

- **A** \$(x, y) \in R, (y, x) \in R \Rightarrow x = y\$\$
- **B** \$(x, y) \in R \Rightarrow (y, x) \in R \$

Answer: A

Explanation:

NOTE-

Whether the empty relation is reflexive or not depends on the set on which you are defining this relation -- you can define the empty relation on any set XX.

1- The statement "RR is reflexive" says: for each $x \in Xx \in X$, we have $(x,x) \in R(x,x) \in R$. This is vacuously *true* if $X = \emptyset X = \emptyset$, and it is *false* if XX is nonempty.

2- The statement "RR is symmetric" says: if $(x,y) \in R(x,y) \in R$ then $(y,x) \in R(y,x) \in R$. This is vacuously *true*, since $(x,y) \notin R(x,y) \notin R$ for all $x,y \in Xx, y \in X$.

3- The statement "RR is transitive" says: if $(x,y) \in R(x,y) \in R$ and $(y,z) \in R(y,z) \in R$ then $(x,z) \in R(x,z) \in R$. Similarly to the above, this is vacuously true.

4- To summarize, RR is an equivalence relation if and only if it is defined on the empty set. It fails to be reflexive if it is defined on a nonempty set.

Question 115

If A and B are two sets such that n(A) = 4 and n(B) = 5, then the number of non-constant functions from A into B is

- **A** 625
- **B** 1024
- **C** 1020
- **D** 620
 - Answer: D

Explanation:

If X has m elements and Y has n elements, the number if onto functions are,

 $\larray\c\n\ 1\eqt(\begin{array}c\n\ 1\eqt(\be\ 1\eqt(\begin{array}c\n\ 1\eqt(\begin{array}c\n\ 1\eq$

here m= 5 and n= 4 put the value and we get

620 Answer

Question 116

Two lines \$\$L_1\$\$ and \$\$L_2\$\$ make intercepts a. -b and b, -a respectively on the x and y axes. Then angle between \$\$L_1\$\$ and \$\$L_2\$\$ is

- A \$\$Tan^{-1}\left(\frac{a^2 b^2}{ab}\right)\$\$
- **B** $\frac{1}{\frac{1}{\frac{1}{\frac{1}{2}}}}$
- C \$\$Tan^{-1}\left(\frac{a^2 b^2}{2ab}\right)\$\$
- **D** \$\$\frac{\pi}{2}\$\$

Answer: C

Explanation:

we know the line fourmula y = mx + c

we have two line equation

ax - yb = 0 and bx - ay = 0

then we get $\frac{1}{\$} = \frac{1}{\$} = \frac{1}{\$}$ and \$\$y_{2}\$\$ = \$\$m_{2}\$\$x + \$\$ c_{2}\$\$ put the value of x and y we get -b = a\$\$m_{1}\$\$ + \$\$ c_{1}\$\$ and -a = b \$\$m_{2}\$\$ + \$\$ c_{2}\$\$ where $\c c_{1}\$ and $\c c_{2}\$ are constant = 0 then \$\$m_{1}\$\$ = -b\a \$\$m_{2}\$\$ = -a\b and then we know that the angle is $\pm = \frac{1}{m_{2}} (1 + m_{1}m_{2})$ put the value of \$\$m_{1}\$\$ and \$\$m_{2}\$\$ we get \$\$\tan\theta\$\$ = \$\$\frac {(a^{2}-b^{2})}{2ab}\$\$ Answer

Question 117

Equation of perpendicular bisector of the line segment joining (13, -2) and (-5, 10) is

- **A** 2x + 3y = 20
- **B** 2x 3y + 4 = 0
- **C** 3x 2y = 4
- **D** 3x + 2y = 20
 - Answer: C

Explanation:

The general line through two points (a,b)(a,b) and (c,d)(c,d) is

(c - a) (y-b) = (d - b) (x - a)

In our case, that is

(-5 - 13)(y + 3) = 12(x - 13) = -18(y + 2) = 12(x - 13)

which we can write

12x + 18y = -120

2x + 18y = -20 **Answer**

Question 118

\$\$\tan 480^\circ =\$\$

- A \$\$-\sqrt{3}\$\$
- **B** \$\$\sqrt{3}\$\$
- **C** \$\$-\frac{1}{\sqrt{3}}\$\$
- **D** \$\$\frac{1}{\sqrt{3}}\$\$

```
Answer: A
```

Explanation:Tan(480) =Tan(360+120) = Tan 120\$ \because \$ tan(360 + \$ \theta) = tan \$ \theta Tan120 = Tan(90+30) = -Cot 30Tan30 = $1/\sqrt{3}$, so, Cot 30 = $\sqrt{3}$

\$\$\cos \frac{2 \pi}{6} + \sin \frac{5 \pi}{6} = \$\$

A 0

- **B** 1
- **C** -1
- **D** 2

```
Answer: B
```

Explanation:

\$\$\cos \frac{2 \pi}{6} + \sin	\frac{5 \pi}{6} =\$\$
we can write this	
cos60 + sin150 =	equation 1
and sin150 = sin(90 + 60)	
= sin90co60 + cos9	Osin60
put sin90 = 1 and cos60 = 1	\2
we get	
sin150 = 1\2 and cos 60 = 1	\2 put value in equation 1

Question 120

 $\cos 60 + \sin 150 = 1 + 1 = 1$

 $\delta - 7 \sin \theta = 0 Rightarrow (7 \cos 2 \theta + 6 \sin 2 \theta)^2 =$

Answer

A 1

- **B** 4
- **C** 49

D 2

Answer: C

Explanation:

we have given that

$\delta \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	equation 1 and	
\$\$(7 \cos 2\theta + 6 \sin 2\theta)^2 =\$\$	equation 2	
then solving equation 1 we get		
$\delta - 7 - 0 \$		
\$\$ \tan \theta\$\$ = 6\7		
now solving equation 2		
$\ \ \ \ \ \ \ \ \ \ \ \ \ $	here we know that	
\$\$ \cos 2\theta\$\$ = \$\$\cos\theta^{2}\$\$ - \$	\$\sin\theta^{2}\$\$ and	<pre>\$\$ \sin 2\theta\$\$ = 2\$\$\sin\theta\$\$ \$\$\cos\theta\$\$</pre>

put the value in equation 2 we get

= (7(\$\$\cos\theta^{2}\$\$ - \$\$\sin\theta^{2}\$\$) + 6 (2\$\$ \sin \theta\$\$ \$\$\cos\theta\$\$))^2

on solving ge get

- = 7\6\$\$\times\$\$ \$\$tan\theta\$\$ \$\$7^{2}\$\$
- = 49 answer

Question 121

Two boys are on opposite sides of a tower of 80 meters height. They measures the angles of elevation of the top of tower as \$\$45^\circ\$\$ and \$\$60^\circ\$\$ respectively. The distance between two boys(in meters) is

- A \$\$\frac{80}{3} (3 + \sqrt{3})\$\$
- **B** \$\$\frac{80}{\sqrt{3}\$\$
- C \$\$\frac{80}{3} (\sqrt{3} 1)\$\$
- D \$\$\frac{80}{3} (3 \sqrt{3})\$\$

Answer: A

Explanation:

let the boys are standing in the triangle \$\$\triangleABC\$\$ here D is the point in between AB
so the height is CD = 80 m and \$\$\angleCAD\$\$ = 45 and \$\$\angleCBD\$\$ = 60
so we can say that
tan45 = CD\AD = 80\AD \$\$\Rightarrow\$\$ AD = 80
tan60 = CD\BD = 80\BD \$\$\Rightarrow\$\$ BD = 80\\$\$\sqrt{3}\$\$
so that the total ditance is AD + BD = 80 + 80\\$\$\sqrt{3}\$\$
\$\$\frac{80}{3}(3+\sqrt{3})\$\$ answer

Question 122

If $\$3x^2 - 5x - 8 < 0$, then x lies in the interval

- **A** \$\$\left(-1, \frac{8}{3}\right)\$\$
- **B** \$\$\left(\frac{-8}{3}, -1\right)\$\$
- **C** \$\$(-\infty, -1)\$\$
- D \$\$\left(\frac{8}{3}, \infty \right)\$\$

Answer: A

Explanation:

we have given that

\$\$3x^2 - 5x - 8 < 0\$\$,

now factorize the equation we get

 $3x^2 - 8x + 3x - 8 < 0$

 $3x^2 + 3x - 8x - 8 < 0$

so we get

(x + 1) (3x - 8) < 0

x = -1, 8\3 **answer**

Question 123

The polynomial in x of least degree with the roots \$\$\frac{3}{2}, \frac{2}{3}, \pm \sqrt{3}\$\$ is

- **A** \$\$(3x 2) (2x 3) (x^2 3)\$\$
- **B** \$\$(3x + 2) (2x + 3) (x^2 3)\$\$
- **C** \$\$(3x 2) (2x + 3) (x² 3)\$\$
- D \$\$(3x + 2) (2x 3) (x^2 3)\$\$

Answer: A

Explanation:

we have given that the root of the polynomonal equation $\$\rac{3}{2}, \rac{2}{3}, \pm$$ \sqrt{3}$$ is mean that$ $(x - 3\2 = 0) (x - 2\3 = 0) (x$$ \pm $$ $$\sqrt{3}$$ = 0)$ $so we have (3x - 2) (2x - 3) ($$ x^{2}$$ - 3) = 0 is the equation so the$ $(3x - 2) (2x - 3) ($$ x^{2}$$ - 3) = 0$ **answer**

Question 124

 $\hat{x^2 - 3x + 2\right} \in (x^3 - 6x^2 + Ax + B\right) \ A^2 + B^2 =$

- **A** 156
- **B** 157
- **C** 158
- **D** 159
 - Answer: B

Explanation:

we have given \$\$\left(x^2 - 3x + 2) \$\$ =0 equation 1 and \$ left(x^3 - 6x^2 + Ax + B) \$ = 0 equation 2 now we have to factorize equation 1 we get the equation (x - 1) (x - 2) = 0x = 1, 2 put the value of x in equation 2 we get 2a + b = 16 equation 3 a + b = -5equation 4 on solving eq 3 and eq 4 we get a = 11 b = 6 then a² + b² = 157 answer

```
If $$x - 3$$ and $$x^4 - 2x^3 + 3x^2 - mx + 3$$, then $$m =$$
```

- **A** 15
- **B** 16
- **C** 17
- **D** 19

Answer: D

Explanation:

we have given that

x - 3 on we get x = 3 put the value of x in the following equation

 $\$x^4 - 2x^3 + 3x^2 - mx + 3\$ = 0$

3^4 - 2\$\$\times{3^3}\$\$ + 3\$\$\times{3^2}\$\$ - m\$\$\times{3}\$\$ + 3 = 0

m\$\$\times{3}\$\$ = 57

m = 19 **answer**

Question 126

 $\hat{x - 3} + \frac{6}{y - 4} = 5, \frac{5}{x - 3} - \frac{3}{y - 4} = 1 \quad x = 1 \quad$

A 8

B 9

C 10

D 11

Answer: D

Explanation:

we have given that

 $\$ (frac{4}{x - 3} + \frac{6}{y - 4} = 5\$\$ equation 1 $\$ (frac{5}{x - 3} - \frac{3}{y - 4} = 1\$\$ equation 2 now 2\$\$\times{equation}\$\$ - equation 1 2{\$\$\frac{5}{x - 3} - \frac{3}{y - 4} = 1\$\$} -\$\$\frac{4}{x - 3} + \frac{6}{y - 4} = 5\$\$ then we get x= 5 put the value of x in equation 1 \$\$\frac{4}{5 - 3} + \frac{6}{y - 4} = 5\$\$ we get y = 6 then x + y = 11 **answer Question 127**

If x, y(x < y) are primes satisfying x + y = 30, then the number of such pairs (x, y) is

A 1

B 2

c ³

D 4

Answer: C

Explanation:

we have given

- x + y = 30, and x, y(x < y)then we have
- y x > 0
- y > x

then y should be positive integer and the x have the following condition

x > 0

x = 0

x < 0

so we have three pair of satisfying the condition of (x,y) in equation x + y = 30 answer

Question 128

If seventh and eleventh terms of an arithmetic progression are 31 and 47 respectively. then fifteenth termis

- **A** 67
- **B** 63
- **C** 59

D 55

Answer: B

Explanation:

Let **a** and **d** are **first term** and **common difference** of an **A.P.** $\$n^{th}\$ term will be $\$a_{n}\$ = a + (n-1)d then we have $\$a_{7}\$ = a + (7-1)d $\$a_{7}\$ = a + 6d equation 1 $\$a_{11}\$ = a + (11-1)d $\$a_{11}\$ = a + 10d equation 2 now eq2 - eq1 we get 4d = 16 then d = 4 put the value in eq 1 we get a = 31 so the 15^(th) term will be $\$a_{15}\$ = 31 + (15-1)4 $\$a_{15}\$ = 63 answer **Question 129**

If \$\$6^{th}\$\$ term and \$\$13^{th}\$\$ term of a geometric progression are 24 and \$\$\frac{3}{16}\$\$ respectively, then the \$\$25^{th}\$\$ term is

- A \$\$\frac{3}{2^{18}}\$\$
- **B** \$\$\frac{3}{2^{25}}\$\$
- **C** \$\$\frac{3}{2^{24}}\$\$
- **D** \$\$\frac{3}{2^{16}}\$\$

Answer: D

Explanation:

let the first term is a and common ratio is r then $\$T_{6}\$= a\$\$\times times{r}^{5}\$= 24 \qquad equation 1$ $\$T_{13}\$= a\$\%\times times{r}^{12}\$= 3\times equation 2$ $equation 1 \land equation 2$ $24\times 3\times 6 = 1\times 7^{7}$ $128 = 1\times 7^{7}$ $2 = 1\times 7$ $r = 1\times 2$ put the value of r in equation 1 $a\$\%\times times\frac{1}{2}^{5}\$\$= 24$ so we get a= 768 so the series is 768, 384, 192, 96, 48, 24, 12, 6, 3, 3\times 2, 3\times 2^{2},
so the 25^{th} term is

\$\$\frac{3}{2^{16}}\$ answer

Question 130

The term independent of x in the expression of $\label{eq:left} \frac{1}{x^2} + \frac{1}{x^2} \right)$

- **A** \$\$3^{rd}\$\$
- **B** \$\$7^{th}\$\$
- **C** \$\$5^{th}\$\$
- **D** \$\$4^{th}\$\$
 - Answer: C

Explanation:

we know that general term of expansion (a+b)^n is $T_{r+1}\$ = $\n x^{s}\$ here in expression $\$ \left(2x^2 + \frac{1}{x^2}\right) \\$ we have given n=1 a=2x^2 b=1\x^2 T_{r+1}\ = $\1C_r\$ \\$ (2x^2)^{1-r}{1\x^2}^1

- = $\$1C_{r}$
- $= $$1C_{r}$${2}^{1-r}x^{2-2r}x^-2r$
- = $$1C_{r}$

so from that n-r =0 and r=4 $\,$ so n=\$\$5^{th}\$\$ term answer

```
\frac{1}{a_2n_1} = \frac{1}{a_2n_2} + \frac{1}
```

- A \$\$\frac{3^n 1}{2}\$\$
- **B** \$\$\frac{3^n + 1}{2}\$\$
- **C** \$\$3^n\$\$
- **D** \$\$3^n 1\$\$
 - Answer: A

Explanation:

 $\hat{t} = 1$

```
\begin{aligned} & \ \|eft(1 + 1 + 1 \ hright)^n = a_0 + a_1 + a_2 + \dots + a_{2n-1} + a_{2n} \\ & \ \|a_0 + a_1 + a_2 + \dots + a_{2n-1} + a_{2n} \\ & \ \|a_0 + a_1 + a_2 + \dots + a_{2n-1} + a_{2n} \\ & \ \|eft(1 - 1 + 1 \ hright)^n = a_0 - a_1 + a_2 - \dots - a_{2n-1} + a_{2n} \\ & \ \|a_0 - a_1 + a_2 - \dots - a_{2n-1} + a_{2n} \\ & \ \|a_0 - a_1 + a_2 - \dots - a_{2n-1} + a_{2n} \\ & \ \|a_0 - a_1 + a_2 - \dots + a_{2n-1} + a_{2n} \\ & \ \|a_0 - a_1 + a_2 - \dots + a_{2n-1} + a_{2n} \\ & \ \|a_0 - a_1 + a_2 - \dots - a_{2n-1} + a_{2n} \\ & \ \|a_0 - a_1 + a_2 - \dots - a_{2n-1} + a_{2n} \\ & \ \|a_0 - a_1 + a_2 - \dots - a_{2n-1} + a_{2n} \\ & \ \|a_0 - a_1 + a_2 - \dots - a_{2n-1} + a_{2n} \\ & \ \|a_0 - a_1 + a_2 - \dots - a_{2n-1} \\ & \ \|a_0 - a_1 + a_2 - \dots - a_{2n-1} \\ & \ \|a_0 - a_1 + a_2 - \dots - a_{2n-1} \\ & \ \|a_0 - a_1 + a_2 - \dots - a_{2n-1} \\ & \ \|a_0 - a_1 + a_2 - \dots - a_{2n-1} \\ & \ \|a_0 - a_1 + a_{2n-1} \\ & \ \|a_0 - a_1 \\ & \ \|a_0 - a_1 + a_{2n-1} \\ & \ \|a_0 - a_1 \\ & \ \|
```

Question 132

\$\$A = \begin{bmatrix}1 & 1 \\1 & 1 \end{bmatrix} \Rightarrow A^{2019} =\$\$

- A \$\$2^{2020} A\$\$
- B \$\$2^{2019} A\$\$
- C \$\$2^{2018} A\$\$
- D \$\$2^{2017} A\$\$
 - Answer: C

Explanation:

\$\$A = \begin{bmatrix}1 & 1 \\1 & 1 \end{bmatrix}\$\$

 $A^{2} = \begin{bmatrix}1 & 1 \1 & 1 \begin{bmatrix}1 & 1 \1 & 1 \begin{bmatrix}1 & 1 \1 & 1 \begin{bmatrix}2 & 2 \2 & 2 \end{bmatrix}$

\$\$A^{2} = 2\begin{bmatrix}1 & 1 \\1 & 1 \end{bmatrix} = 2A\$\$

\$\$A = 2\$\$

 $A^{4} = (2A)^{2} = 8 \bigcup A^{2} = 2A^{3}$

 $A^{4} = 4A^{2} = 8A = 2^{2}A^{2}$

\$\$Now, (A^{4})^{504} = (2^{2})^{504}(A^{2})^{504}\$

 $A^{2016} = 2^{1008}(2^{2})^{504}$

\$\$A^{2016} = 2^{2016}\$\$

\$\$A^{2016}A^{3} = 2^{2016}A^{3}\$\$

 $A^{2019} = 2^{2016}A^{2}A$

 $A^{2019} = 2^{2016}2^{2}A$

\$\$A^{2019} = 2^{2018}A\$\$

Question 133

If A and B are 3 x 3 matrices. such that the sum of elements along principal diagonal of A is 3 and the sum of elements along principal diagonal of B is 4. then the sum of principal diagonal elements of 3A + 5B =

A 7

- **B** 11
- **C** 29
- **D** 25
 - Answer: C

Explanation:

Sum of elements along principal diagonal of A = 3
Sum of elements along principal diagonal of B = 4
Sum of principal diagonal elements of $3A + 5B = (3 * 3) + (5 * 4)$
= 9 + 20
= 29

Question 134 $\ \ x^2 = \ x^2 = \$

A 1

- B \$\$\frac{1}{2}\$\$
- **C** \$\$\frac{1}{4}\$\$

D 0

Answer: B

Explanation:

Since, $\c x = 1 - 2\sin^{2}x$

\$\$2sin^{2}x = 1 - cos2x\$\$

Similarly, we can write;

 $\frac{1}{2} = 1 - \cos^{1}$

Now,

= $\hat{x} = \hat{x}$

= $\ 1{2}\ 1 = 1\$

= \$\$\frac{1}{2}\$\$

 $\scriptstyle x = x + x + x^2 - x^$

A 1

- **B** 2
- **C** 3
- **D** 4

Answer: C

Explanation:

 $=\frac{x^2 - \sqrt{x^2 - 1}}{\sqrt{x^2 - 1}}$

After differentiation:

 $\begin{aligned} \times {x - frac{1}{2}sqrt{x}} (frac{1}{2}sqrt{x}) \$

Now,

= $\frac{1}{2} \frac{1}{2}}{\frac{1}{2}}$

= $\ (1{2}) =$

= \$\$3\$\$

Question 136

The angles of a triangle are \$\$30^\circ, 60^\circ\$\$ and \$\$90^\circ\$\$. Then the sides of the triangle are in the ratio

- A \$\$1:\sqrt{3}:3\$\$
- **B** \$\$1 : \sqrt{2} : 2\$\$
- **C** \$\$1:3:2\$\$
- **D** \$\$1:\sqrt{3}:2\$\$

Answer: D

Explanation:

sin\$\$30^\circ\$\$ = \$\$\frac{BC}{AB}\$\$

Let BC = x and AB = 2x

 $AC = $(AB^{2} - BC^{2})$

 $AC = \$\strut{3}x\$\$$

Now,

Required ratio = BC: AC: AB = x: \$ sqrt{3}x\$: 2x = 1: \$\$\sqrt{3}\$: 2

Question 137

The area of a rhombus is 24 sq. cm and one of its diagonals is 8 cm. Then the length of the other diagonal (in cm)is

- **B**⁸
- **C** 3
- **D** 5

Answer: A

Explanation:

```
Area of rhombus = \$\r d1 + d2
```

Where;

d1 = First diagonal and d2 = Second diagonal

Now,

 $24 = \$\frac{1}{2}\$ * 8 * d2$

d2 = 6 cm

Question 138

If two circles have radii 16 cm and 7 cm and the distance between their centers is 4 cm. then the number of commontangents. that can be drawn to the two circles is

A 0

B 1

- **C** 2
- **D** 4
 - Answer: A

Explanation:

The difference between radii of both the circles = 16 - 7 = 9 cm

Since, the difference between radii of both the circles is more than the difference between their centers. This means that the smaller circle will be completely inside the bigger circle there will be no contact point.

Since, there is no contact point of both the circle which means there will be no common tangent of both the circle.

Question 139

If G is the centroid of the triangle \$\$\triangle ABC\$\$ with vertices A(-2, 3), B(-7. 5) and C(3, -5) then the area of \$\$\triangle GAB\$\$ (in sq. units) is

A 8

- **B** 6
- **C** 5
- **D** 15

Answer: C

Explanation:

A = (-2, 3), B = (-7, 5) and C = (3, -5)

 $\mathsf{G}=\$\$\mathrm{-2}+(-7)+3{3}\$\$,\$\%\mathrm{-1}+(-5){3}\$\$=(-2,1)$

Area of $\pm \ = \ (-2)(3 - 5)$

= \$ [-8 + 14 + 4]

= \$\$\frac{1}{2}\$\$ * 10

If (2, -3), (3, 7) and (-4, 6) are the mid points of the sides BC, CA and AB respectively of the \$\$\triangle ABC\$\$, then A =

- **A** (9, -2)
- **B** (-5, -4)
- **C** (-3, 16)
- **D** (1, 10)
 - Answer: C

Explanation:

```
Let co-ordinate of A = (x1,y1), B = (x2, y2) and C = (x3, y3)

Mid-point of AB = \$\frac{x1 + x2}{2}\, \$\frac{y1 + y2}{2}\ = (-4, 6)

x1 + x2 = -8 and y1 + y2 = 12 .....(1)

Similarly,

x2 + x3 = 4 and y2 + y3 = -6 .....(2)

x1 + x3 = 6 and y1 + y3 = 14 .....(3)

From (1), (2) and (3):

x1 + x2 + x3 = 1 and y1 + y2 + y3 = 10 .....(4)

From (2) and (4):

x1 = -3 and y1 = 16

Hence, A = (-3, 16)

Question 141
```

The mean of the squares of the first n natural numbers is

- **A** \$\$\frac{1}{6}(2n^2 + 3n + 1)\$\$
- **B** \$\$\frac{1}{3}(2n^2 + 3n + 1)\$\$
- **C** $$(1){6n}(2n^2 + 3n + 1)$
- **D** \$\$\frac{1}{6} n (n + 1)(2n + 1)\$\$

Answer: A

Explanation:

The mean of first n natural numbers = [n(n+1)]/2The mean of square of first n natural nos.=[(n)(n+1)(2n+1)]/6= $[2n^2 + 3n + 1]/6$

The mean of cube first n natural numbers = $\{[n(n+1)]/2\}^2$

The median of the following frequency distribution is

Х	7	5	9	3	11	12
fx	15	11	18	5	8	3

Α 5

B 7

С 9

D 11

Х 3

5

9

11

Answer: B

Explanation:

The median is a simple measure of central tendency. To find the Median, we arrange the observations in order from smallest to largest value.

If there is an odd number of observations, the median is the middle value.

If there is an even number of observations, the median is the average of two middle values.

We also need to calculate the cumulative frequency which is the sum of two frequencies.

CF fx 5 5 11 5+11=16 15 16+15=31** **7 18 31+18=49 8 49+8=57 57+3=60 12 3 Now, (60/2) + 1 = 31

31 occurs in the 3rd column corresponding to which the number is 7.

Thus, Median = 7 Ans.

Question 143

Mode of the following distribution is

x	0	1	2	3	4	5
fx	8	19	28	5	0	2

Α 1

В 2

С 3

D 4

Answer: B

Explanation:

The Mode of a set of data values is the value that appears most often.

In this set of data x=2 appears most often i.e., 28 times .

Therefore, Mode of the following distribution is 2. Ans.

Question 144

If the standard deviation of 5, 7, 9, 151 is \$\$\sigma\$\$, then the standard deviation of 32, 44, 56. 908 is

- A \$\$2 \sigma\$\$
- **B** \$\$4 \sigma\$\$
- **C** \$\$6 \sigma\$\$
- **D** \$\$8 \sigma\$\$

Answer: C

Explanation:

Here,

Series 1 is an Arithmetic Progression with common difference = 2

Series 2 is an Arithmetic Progression with common difference = 12

Thus, Series 2 has common difference 6 times of the first.

Also, both the series have same no. of terms

Series 1 = (151-5)/D = (146)/2 = 73

Series 2 = (908 - 32)/D = (876/12)= 73

Therefore , the Standard deviation of the second series will be 6 times of the first.

Hence, 6\$\$\sigma\\$\$ Ans.

Question 145

Standard deviation of any five consecutive integers is

- A \$\$\sqrt{2}\$\$
- **B** \$\$\sqrt{\frac{4}{5}}\$\$
- **C** \$\$\sqrt{\frac{2}{5}}\$\$
- D \$\$5\sqrt{2}\$\$

Answer: A

Explanation:

As, any five consecutive integers are required, for the sake of easy calculation take the integers as 1,2,3,4,5

Standard deviation , Sigma = \$ (x - x bar) ^ 2]/N

- x Deviation
- 1 (1-3)^2=4
- 2 (2-3)^2=1
- 3 (3-3)^2=0
- 4 (4-3)^2=1
- 5 (5-3)^2=4

where xbar = 3 (assumed mean)

Sum of X bar = 4+1+0+1+4 = 10

= \$\$\sqrt{\}\$\$2 Ans.

Question 146

If the sum of the squares of deviations of ranks of two students in five subjects is 16, then the coefficient of rank correlation is

- **A** \$\$\frac{1}{5}\$\$
- **B** \$\$\frac{2}{5}\$\$
- C \$\$\frac{3}{5}\$\$
- **D** \$\$\frac{3}{8}\$\$

Answer: A

Explanation: Given, Squares of deviation, D^2= 16

No. of subjects, N=5

Now, according to Spearmen's rank correlation

Coeffiecient of rank correlation ,R = 1 - (6 *Summation $D^{2}/[N(N^{2}-1)]$

= 1 - (6*16)/[5(25-1)]

- = 1 (6*16/(5*24)
- = 1 (4/5)
- =1/5 Ans.

Question 147

A fair coin is tossed repeatedly. If tail appears on first four tosses, then the probability of head appearing onfifth toss is

- A \$\$\frac{1}{6}\$\$
- **B** \$\$\frac{1}{5}\$\$
- **C** \$\$\frac{1}{3}\$\$
- **D** \$\$\frac{1}{2}\$\$

Answer: D

Explanation:

Ocurrence of Heads/Tails appearing on a coin tossed is independent of the previous results.

Therefore, the probability of head appearing on fifth toss is same as any other time = (1/2) Ans.

Question 148

If a number is selected at random out of the first 120 natural numbers, then the probability that it is divisible by 5 or 8 is

- A \$\$\frac{2}{5}\$\$
- **B** \$\$\frac{1}{5}\$\$
- C \$\$\frac{3}{10}\$\$

D \$\$\frac{1}{2}\$\$

Answer: C

Explanation:

Numbers out of the first 120 that are divisible by 5 = (120/5)=24 Numbers out of the first 120 that are divisible by 8 = (120/8)=15 So, the numbers that are divisible by 5 or 8 = 24+15= 39 But, these 39 numbers also includes the numbers which are divisible by both 5 and 8. Therefore we need to subtract these numbers. Numbers out of the first 120 that are divisible by both 5 and 8 = 120/(5*8)= 120/40=3 Thus , Numbers out of the first 120 that are divisible by 5 or 8 = 39-3=36 Probability of the event required =36/120

=3/10 Ans.

Question 149

If a coin is tossed five times the probability that at least one head appears on the top is

- A \$\$\frac{1}{32}\$\$
- **B** \$\$\frac{13}{32}\$\$
- C \$\$\frac{31}{32}\$\$
- **D** \$\$\frac{1}{16}\$\$
 - Answer: C

Explanation:

Probability of an event, P(E)=(No. of favourable outcomes)/(No. of total outcomes)

Now,

Total no. of outcomes of an event with two possible results = 2ⁿ (2 raise to power n)

where n is no. of times the event occurs

Here, as the coin is tossed 5 times

Therefore, the no. of total outcomes = $2^5 = 2^2 + 2^2 + 2^2 = 32$

As, Total cases are 32 and we need the cases with atleast one head

So, the only case possible with no head is the case where all the coins have Tails.

Thus, favourable outcomes are 32-1 = 31

where 1 was the event with 5 tails.

Hence, P(E)=31/32 Ans.

Question 150

If A and B are two events in a random experiment with $P(A) = \frac{3}{8}$, $P(B) = \frac{5}{8}$ and $P(A \subset B) = \frac{1}{4}$, then $P(A \subset B) =$

- A \$\$\frac{1}{4}\$\$
- **B** \$\$\frac{3}{4}\$\$
- **C** \$\$\frac{1}{2}\$\$
- **D** \$\$\frac{3}{5}\$\$

Answer: B

Explanation:

Since,

P(A union B)=P(A) + P(B) - P(A intersection B)

=(3/8) + (5/8) - (1/4) =1-(1/4) = (3/4) Ans.

Communication Ability

Instructions

For the following questions answer them individually

Question 151

Choose the correct meaning for the word given: Throes

A throw

- B spasm
- C develop
- D rough

Answer: B

Question 152

Choose the correct meaning for the word given: Altercation

- A exchange of views
- B dispute
- C discussion
- D expressing opinion

Answer: B

Choose the correct meaning for the word given: Victual

- A provisions
- B real
- **C** various
- **D** simple

Answer: A

Question 154

Choose the correct meaning for the word given: Insipid

- A quick
- B dirty
- C tasteless
- D diluted

Answer: C

Question 155

Choose the correct meaning for the word given: Waylay

- A road
- B detain
- **C** allow
- D play

Answer: B

Question 156

Choose the correct meaning for the word given: Candid

- A sweet
- B pleasing
- C frank
- D dishonest

Answer: C

Instructions

Fill in the blank choosing the correct word:

Question 157

The principal ______the good character of the pupil.

- A enforced
- B endorsed
- **C** executed
- D implanted
 - Answer: B

Question 158

Ramya _____ her friend for being lazy

- A admired
- B repudiated
- C reproached
- D exorcised
 - Answer: C

Question 159

Police investigators ______ the case with photographs and recorded interviews.

- A interrogated
- B followed
- C flouted
- D documented

Answer: D

Question 160

Many African countries are _____ by infighting and civil war

- A devalued
- B devastated
- C deviated
- D devoured
 - Answer: B

Instructions

Choose the correct answer:

Question 161

Whichof the following is the fastest way to connectto internet?

- A Dialup modems
- B ISDN
- C Broadband DSL
- **D** Fiber to the Home (FTTH)

Answer: D

Question 162

Which of the following protocol converts the URL into the corresponding IP address of a webserver?

- A DNS
- B HTTP
- C DHCP
- D FTP

Answer: A

Question 163

A Wireless communication technology intended to replace cables is known as

- A Bit
- B Blue tooth
- C Blue ink
- D Boot

Answer: B

Question 164

A Software program that has been developed to do harm to other computers in known as

- A Malware
- B Virus
- C Phishing
- D Spam

Answer: A

Question 165

Which one of the following is not a characteristic of computers?

- A Accuracy
- **B** Fatigue
- **C** Automation
- D Robustness

Answer: B

Question 166

Whichof the following describes the nature of management?

- A Management is an exact science
- B Management is liberal art
- C Management is an inexact science
- D Management is a fine art

Answer: C

Question 167

What helps im easyidentification and accounting of transactions at retail stores?

- A Barcoding
- B Balance sheet
- C Management Information System
- D Cost Sheet

Answer: A

Question 168

Whois the present Governor of RBI?

- A Mr. Shaktikanta Das
- B Dr. Urjit Patel
- C Dr. Bimal Jalan
- D Mr. Rajiv Kumar

Answer: A

Increase in value of an asset over time is known as

- A Demand
- **B** Appreciation
- **C** Depreciation
- **D** Inflation

Answer: B

Question 170

A short period of temporary economic decline during which trade and industrial activity is reduced is known as

- A depression
- B depreciation
- C recession
- **D** succession

Answer: C

Question 171

- A: "He's hoping to set up a travel business on his own."B: "Yes. but the likely cost of it all will put himoff'.'B' is
- A encouraging
- B sceptical
- **C** enthusiastic
- D disappointed

Answer: B

Question 172

- A: "Why don't you do the cooking today?"B: "As far as cooking is concerned. I am a square peg in a round hole."'B' implies that he is
- A uncomfortable
- B agreeable
- C happy
- D competent

Answer: A

"He told us the story in a <u>nutshell</u>." The meaning of the underlined phrase is

- A to conclude
- B to tell in a few words
- **C** to tell elaborately
- D to begin

Answer: B

Question 174

The passive form of the sentence. 'Someone might have already dispatched the letters' is

- A Letters were dispatched already
- B Letters might have been dispatched
- C Letters might have already been dispatched
- D Letters have been dispatched already

Answer: C

Question 175

"Let's run over the plans again." The underlined phrase means

- A read
- B write
- C store
- D review
 - Answer: D

Question 176

"You really should put your foot down or there will be trouble later". The underlined phrase means

- A be kind
- B be interested
- **C** be firm
- D be angry
 - Answer: C

"I wouldn't like to go through that again". The underlined phrase means

- A enter
- B endure
- C receive
- D Raise

Answer: B

Instructions

Fill in the blanks with the appropriate phase/verbs/ preposition:

Question 178

The intravenous drug will ______ through the patient's body in about 20 minutes.

- A defuse
- B diffuse
- **C** imbibe
- D infuse
 - Answer: B
- Question 179

Whenhe was teaching, all the students ______ silent.

- A had been
- B is
- **C** were
- D has been

Answer: C

Question 180

When I was eating, the phone _____

- A is ringing
- B rang
- **C** ringing
- D ring
 - Answer: B

They got _____ their car quickly

- A in
- **B** on
- **c** into
- **D** over

Answer: C

Question 182

We shall see whether they are amenable ______ reason.

- A for
- B with
- C against
- D to

Answer: D

Question 183

There was an accident in the morning. A bus collided ______ a car

- A into
- B with
- **C** on
- D at

Answer: B

Question 184

Sales have really _____ now

- A taken off
- B taken up
- **C** taken in
- D taken to

Answer: A

Гhe summer	_ very	early	in	the	South
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- A set in
- B set off
- C set up
- D set on

Answer: A

Instructions

Readthe following passage and answer questions:

Unconsciously, managers without leadership qualities will often seek, above all else. to be liked. Rather than holding people accountable. they let them off the hook. They give non-performers the uneasy feeling that everything's fine. They are managers who seek approval rather than respect. But this habit has a severe consequence. It leads to a lack of trust in the work place. the most common"issue" on employee surveys. A true leader does not focus first on trying to be liked. A true leader focuses on the practices and communications that lead to being respected. A true leader does not try to become everybody's big buddy. although he or she values being upbeat and cheerful in communication. A true leaderis not overly concerned with always being liked and is even willing to engage in very uncomfortable conversations in the name of being straight and thorough. A true leader does not try to downplayresponsibility for leadership.

Question 186

Whatdoes a bad leader seek?

- A approval from others
- B trust
- **C** work
- D lack of responsibility

Answer: A

Question 187

What does "let them off the hook" mean?

- A give themfree time
- B give them easy jobs
- C encourage unaccountability
- **D** punish themseverely

Answer: C

Question 188

Whatis the most common'issue' on employee surveys?

A the manager is too popular

- B the managerdoes not trust the worker
- C there is no firmb elief in the ability of managers
- **D** the manager does not do any work

Answer: C

Question 189

"A true leader does not try to become everybody's big buddy "" Explain

- A everybody's enemy
- B everybody's master
- C everybody's superior
- D everybody's friend

Answer: D

Question 190

Whatis a true leader prepared to do?

- A incur even displeasure to promote honesty and efficiency
- **B** fight for his rights
- C discipline his workers
- D exploit his position

Answer: A

Instructions

Readt he following passage and answer questions.

You are poised at a crucial juncture of your life. when many paths are open to you. You are like a princess who has but to command and your desires are fulfilled. Still it would be prudent to remember that the saying "All that glitters is not gold", was never truer than it is today. In this age of virtual reality all that your senses perceive will more often than not be anillusion. There are many rainbows that the world will display to entice you: make sure that what you chase will bear closer scrutiny: remember also that you win some and lose some. and above all never forget that hard work will always pay you in the long run-even if Lady Luck does not smile at you at first. The glamour displayed in the media coupled with the success of some of your friends and acquaintances in beauty contests, modeling, acting and so on must be awfully tempting to emulate. You would do well, however, to peer behind the scenes and decide whether the world of cut-throat competition that exists behind the facade is something you can take in yours tride. Spare a thought for the thousands who were possibly more beautiful, more gifted. more graceful but lost to anonymity having staked andlost all in the viciousrat race.

Question 191

What does the discussion represent?

- A dream world
- B realism
- C bad advice
- **D** the future of films

Answer: B

Question 192

What must be remembered?

- A that you win some and lose some
- B that you can winall, if you are clever
- C that you win all and you lose some
- D that you win some andlose all

Answer: A

Question 193

What does happen even if Lady Luck does not smile on yourface first?

- A You will never be lucky
- B Hard work will never pay
- C You will stop working
- D Hard work will always pay youinthe long run

Answer: D

Question 194

What does the success of some of your friends in beauty contests mean to you?

- A it is tempting to emulate
- B it makes one jealous
- C it is insignificant
- D it is a bad example

Answer: A

Question 195

What must one keep in mind before deciding to enter into beauty contests, modeling, acting and so on?

- A that one is bound to succeed anyway
- B that the most beautiful will makeit big
- C that one needsa lot of grace to succeed
- D that it is a rat race out there

Answer: D

Instructions

Read the following passage and answer questions

The Japan Society's crash course on howto bridge the chasm between Japanese and American managers forces participants to examine their own cultural assumptions, as well as to learn about the other side. Behaviors which Americans consider trustworthy are often precisely that which Japanese associate with shifty character and vice versa.

To Americans, people who pause before replying to a question are probably dissembling. They expect a trustworthy person to respond directly. The Japanese distrust such fluency. They are impressed by somebody who gives careful thought to a question before making a reply. Most Japanese are comfortable with periods of silence. Americans find silence awkward and like to plug only conversational gaps.

The cherished American characteristics of frankness and openness are also misunderstood. The Japanese think it is sensible as well as polite for a person to be discreet until he is sure that a business acquamtance will keep sensitive information confidential. An American who boasts, "I am my own man" can expect to find his Japanese's hosts anxiously counting chopsticks after business lunch. As the Japanese see it. individuals are anti-social. Team players are sound.

Question 196

The Japan Society's crash course does not include one of the following

- A to examine cultural assumptions
- B to learn about eachother's cultural assumptions
- C to bridge the gap between American and Japanese managers
- D to judge the behvaiour of both American and Japanese managers

Answer: D

Question 197

If someone pauses before replying to a question, Americans think she/he is probably

- A giving a careful thought
- B putting a false front
- **C** reconsidering the idea
- D considering a second line of opinion

Answer: B

Question 198

The Japanese are impressed by

- A careful thought before answering
- B awkwardness in answering
- C fluency in answering
- D dissembling in answering

Answer: A

Question 199

The Americans are embarrassed by

- A careful replies
- B hesitant answers
- ${\bm C} \quad \text{silences in conversation} \quad$
- D frank outspokenness

Answer: C

Question 200

"The Japanese think team players are sound", 'sound' here means

- A loud
- B noisy
- **c** reliable
- D important

Answer: C