



2017 SSC CGL 11 Aug Shift-1

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Reasoning

Instructions

For the following questions answer them individually

Question 1

In the following question, select the related word from the given alternatives.

Hockey : Stick :: Boxing : ?

- A Bat
- B Ball
- C Sword
- D Gloves

Answer: D

Explanation:

A stick is used to play hockey, in the same way, gloves are used for boxing.

=> Ans - (D)

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Question 2

In the following question, select the related letters from the given alternatives.

FS : LY :: IV : ?

- A GT
- B HS
- C IR
- D TZ

Answer: A

Explanation:

Expression = FS : LY :: IV : ?

The pattern followed is that $S - F = 19 - 6 = 13$

and $Y - L = 25 - 12 = 13$

Similarly, $V - I = 22 - 9 = 13$

Thus, $T - G = 20 - 7 = 13$

=> Ans - (A)

Question 3

In the following question, select the related number group from the given alternatives.

19 : 367 :: ? : ?

- A 21 : 447
- B 22 : 491

C 29 : 850

D 31 : 963

Answer: A

Explanation:

Expression : $19 : 367 :: ? : ?$

The pattern is $n : n^2 + 6$

Eg = $19 : 19^2 + 6 = 19 : 367$

Now, only the first option matches above criteria

= $21^2 + 6 = 441 + 6 = 447$

=> Ans - (A)

Question 4

In the following question, select the odd word from the given alternatives.

A Sea

B Ocean

C Lake

D Marsh

Answer: D

Explanation:

Sea, ocean and lake are water bodies, but Marsh is a land near a water body.

=> Ans - (D)

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Question 5

In the following question, select the odd letter group from the given alternatives.

A AJ

B EN

C NW

D PW

Answer: D

Explanation:

(A) : A (+9 letters) = J

(B) : E (+9 letters) = N

(C) : N (+9 letters) = W

(D) : P (+7 letters) = W

=> Ans - (D)

Question 6

In the following question, select the odd number from the given alternatives.

- A 170
- B 290
- C 360
- D 530

Answer: C

Explanation:

Among the given numbers, only 360 is an even multiple of 10, hence it is the odd one out.

=> Ans - (C)

Question 7

Arrange the given words in the sequence in which they occur in the dictionary.

1. Effacers
2. Effacing
3. Effaceable
4. Effacements
5. Effacement

- A 34125
- B 35412
- C 43152
- D 43215

Answer: B

Explanation:

As per the dictionary,

= Effaceable -> Effacement -> Effacements -> Effacers -> Effacing

≡ 35412

=> Ans - (B)

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Question 8

A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.

C11, V17, O23, ?

- A H30
- B H31
- C I29
- D I31

Answer: B

Explanation:

Expression : C11, V17, O23, ?

The numbers are alternate prime numbers, thus the second prime after 23 = 31 (before 29)

For the words,

C (+19 letters) = V (+19 letters) = O (+19 letters) = H

Thus, missing word = H31

=> Ans - (B)

Question 9

In the following question, select the missing number from the given series.

19, 26, 45, 71, 116, ?

A 166

B 172

C 184

D 187

Answer: D

Explanation:

The pattern is that the next number is the sum of previous 2.

$$19 + 26 = 45$$

$$26 + 45 = 71$$

$$45 + 71 = 116$$

$$71 + 116 = \mathbf{187}$$

=> Ans - (D)

Question 10

Abhinav travels 10 km north then turns left. Then he travels 6 km and turns right and cover another 7 km. He finally turns to right and travels another 6 km. How far (in km) is he from the point of starting his journey?

A 14

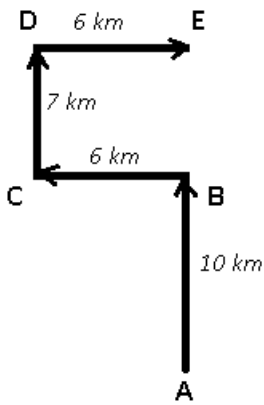
B 16

C 15

D 17

Answer: D

Explanation:



Let Abhinav's initial position be at A, he travels 10 km North and reaches B.

Then he turns left for 6 km and reaches C.

His final position is at E.

=> $AE = 10 + 7 = 17$ km

=> Ans - (D)

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Question 11

In the English alphabet, which letter is 13th from right end?

- A L
- B M
- C N
- D O

Answer: C

Explanation:

Total number of letters = 26

Position of letter from right end = 13th

=> Position from left end = $(26+1) - 13 = 14$ th = N

=> Ans - (C)

Question 12

In the following question, from the given alternative words, select the word which cannot be formed using the letters of the given word.

HANDSOME

- A HATS
- B HOME
- C NAME
- D SAND

Answer: A

Explanation:

The word HANDSOME does not contain any 'T', and thus the word 'Hats' cannot be formed.

=> Ans - (A)

Question 13

In a certain code language, "ACCOUNT" is written as "DFFRXQW". How is "MATHS" written in that code language?

- A PDWKV
- B PKLKP
- C PEWLU
- D PWDVK

Answer: A

Explanation:

"ACCOUNT" is written as "DFFRXQW"

The pattern followed is :

A	C	C	O	U	N	T
(+3)	(+3)	(+3)	(+3)	(+3)	(+3)	(+3)
D	F	F	R	X	Q	W

Similarly, for MATHS :

M	A	T	H	S
(+3)	(+3)	(+3)	(+3)	(+3)
P	D	W	K	V

=> Ans - (A)

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Question 14

If "-" means "divided by", "+" means "multiplied by", "÷" means "added to", "x" means "subtracted from", then

$$11 \div 6 - 2 + 5 \times 3 = ?$$

- A 17
- B 21
- C 23
- D 26

Answer: C

Explanation:

Expression : $11 \div 6 - 2 + 5 \times 3 = ?$

$$\equiv 11 + 6 \div 2 \times 5 - 3$$

$$= 11 + 15 - 3 = 23$$

=> Ans - (C)

Question 15

If $3 \# 6 * 9 = 45$ and $9 \# 8 * 7 = 105$, then what is the value of $5 * 6 \# 3 = ?$

- A 14
- B 68
- C 86
- D 90

Answer: B

Explanation:

The pattern is that '#' is a concatenate operator and '*' is treated as addition operator.

Eg : $3 \# 6 * 9 = 36 + 9 = 45$

and $9 \# 8 * 7 = 98 + 7 = 105$

Similarly, $5 * 6 \# 3 = 5 + 63 = 68$

=> Ans - (B)

Question 16

In the following question. select the number which can be placed at the sign of question mark (?) from the given alternatives.

336	170	748
523	78	349
431	?	328

- A 33
- B 34
- C 36
- D 37

Answer: C

Explanation:

$(7 * 4 * 8) - (3 * 3 * 6) = 224 - 54 = 170$

$(3 * 4 * 9) - (5 * 2 * 3) = 108 - 30 = 78$

$(3 * 2 * 8) - (4 * 3 * 1) = 48 - 12 = 36$

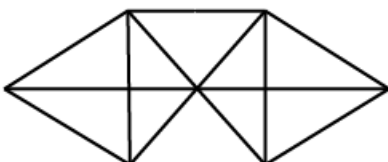
So, the missing number is 36.

Hence, option C is the correct answer.

General Science Notes for SSC CGL

Question 17

How many triangles are there in the given figure ?



- A 16
- B 20
- C 22
- D 24

Answer: C

Question 18

In the following question below are given some statements followed by some conclusions. Taking the given statements to be true even if they seem to be at variance from commonly known facts, read all the conclusions and then decide which of the given conclusion logically follows the given statements.

Statements:

- I. All bags are tables.
- II. No table is red.

Conclusions:

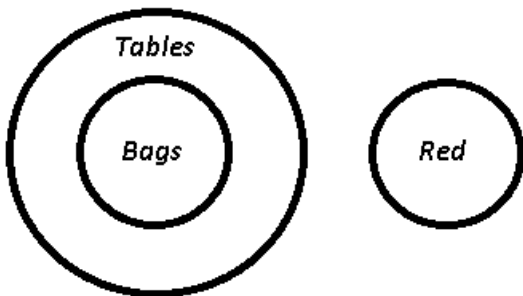
- I. Some bags are red.
- II. All bags are red.

- A Only conclusion (I) follows.
- B Only conclusion (II) follows.
- C Neither conclusion (I) nor conclusion (II) follows.
- D Both conclusions follow.

Answer: C

Explanation:

The venn diagram of the above statements is :



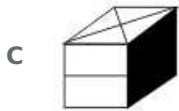
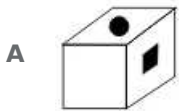
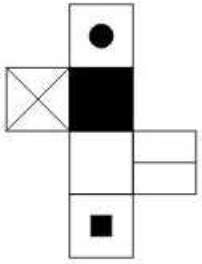
- I. Some bags are red = false
- II. All bags are red = false

Thus, neither conclusion (I) nor conclusion (II) follows.

=> Ans - (C)

Question 19

From the given options, which figure can be formed by folding the figure given in the question?



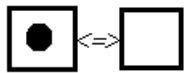
Answer: D

Explanation:

When we fold the given figure, the black side will face the side with small black square.



Also, the sides that will face each other are :



Thus, the last option is the only possibility.

=> Ans - (D)

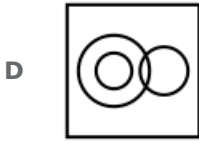
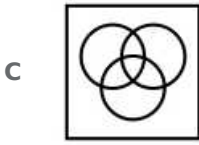
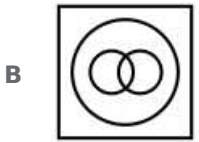
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Question 20

Identify the diagram that best represents the relationship among the given classes.

Bull, Animal, Carnivorous





Answer: D

Explanation:

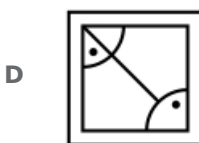
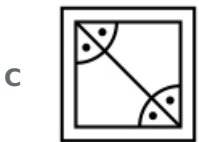
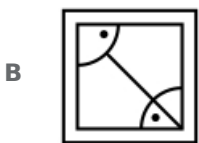
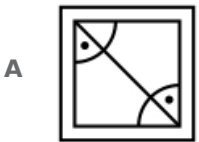
All bulls are animals, but bulls are not carnivorous.

Also, some carnivorous are animals, thus the last option is the best representation for above relationship.

=> Ans - (D)

Question 21

Which answer figure will complete the pattern in the question figure



Answer: A

Explanation:

When we complete the pattern in question figure, we get :

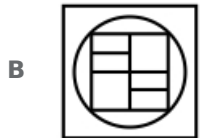
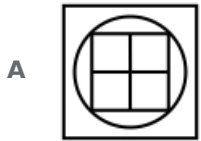
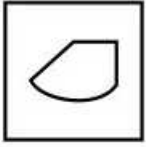


Thus, the first option matches the figure in blue colour.

=> Ans - (A)

Question 22

From the given answer select in one in which the question figure is hidden / embedded



Answer: C

Explanation:

The question figure is embedded in the following figure in blue colour.

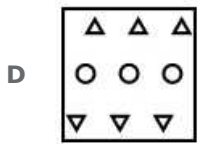
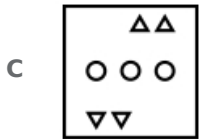
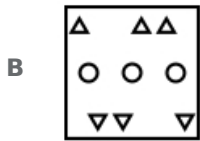
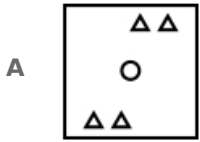
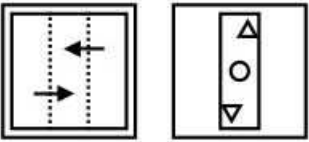


=> Ans - (C)

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Question 23

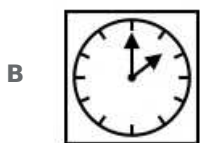
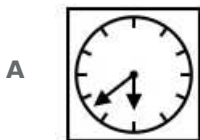
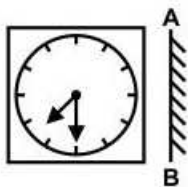
A piece of paper is folded and punched as shown below in the question figures. From the given answer figures, indicate how it will appear when opened.



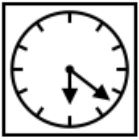
Answer: B

Question 24

If a mirror is placed on the line AB, then which of the answer figures is the right image of the given figure?



C



D



Answer: D

Explanation:

A vertical mirror is placed, so the position of the clock hands will change, i.e. one pointing at bottom left will now point at bottom right, and thus the first two options are eliminated.

Also, the minute hand will keep facing down, and thus the third option is not the mirror image.

=> Ans - (D)

Question 25

A word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as shown in the given two matrices. The columns and rows of Matrix-I are numbered from 0 to 4 and that of Matrix-II are numbered from 5 to 9. A letter from these matrices can be represented first by its row and next by its column, for example, 'P' can be represented by 02, 10, etc., and 'G' can be represented by 66, 98, etc. Similarly, you have to identify the set for the word "TRAIL".

Matrix - I

	0	1	2	3	4
0	I	T	P	R	U
1	P	R	U	I	T
2	T	I	R	U	P
3	R	U	T	P	I
4	U	P	I	T	R

Matrix - II

	5	6	7	8	9
5	G	A	L	H	S
6	H	G	S	A	L
7	A	L	G	S	H
8	S	H	A	L	G
9	L	S	H	G	A

A 01, 03, 75, 00, 68

B 14, 30, 68, 13, 58

C 20, 44, 99, 21, 96

D 43, 11, 56, 34, 88

Answer: D

Explanation:

(A) : 01, 03, 75, 00, 68 = TRAIA

(B) : 14, 30, 68, 13, 58 = TRAIH

(C) : 20, 44, 99, 21, 96 = TRAIS

(D) : 43, 11, 56, 34, 88 = **TRAIL**

=> Ans - (D)

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Mathematics

Instructions

For the following questions answer them individually

Question 26

A fraction becomes $\frac{6}{5}$ when 5 is added to its numerator and becomes $\frac{1}{2}$ when 4 is added to its denominator. What will be the value of the fraction?

- A $\frac{8}{9}$
- B $\frac{7}{10}$
- C $\frac{7}{8}$
- D $\frac{6}{11}$

Answer: B

Explanation:

Let the fraction be $\frac{x}{y}$

When 5 is added to numerator, $\Rightarrow \frac{x+5}{y} = \frac{6}{5}$

$$\Rightarrow 5x + 25 = 6y \text{ -----(i)}$$

Similarly, $\Rightarrow \frac{x}{y+4} = \frac{1}{2}$

$$\Rightarrow 2x = y + 4 \text{ -----(ii)}$$

Multiplying above equation by '6', $\Rightarrow 6y = 12x - 24$

Substituting above value in equation (i), we get :

$$\Rightarrow 5x + 25 = 12x - 24$$

$$\Rightarrow 12x - 5x = 25 + 24 = 49$$

$$\Rightarrow x = \frac{49}{7} = 7$$

Substituting it in equation (ii), $\Rightarrow y = 2(7) - 4 = 14 - 4 = 10$

$$\therefore \text{Fraction} = \frac{x}{y} = \frac{7}{10}$$

\Rightarrow Ans - (B)

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Question 27

Amit can complete a work in 25 days and Punit can complete the same work in 20 days. Punit alone worked at it for 10 days and then left the work. In how many days will Amit alone complete the remaining work?

- A $11\frac{1}{2}$
- B $12\frac{1}{2}$
- C $13\frac{1}{2}$
- D $14\frac{1}{2}$

Answer: B

Explanation:

Let total work to be done = 100 units

Amit can complete the work in 25 days, \Rightarrow Amit's efficiency = $\frac{100}{25} = 4$ units/day

Similarly, Punit's efficiency = $\frac{100}{20} = 5$ units/day

Work done by Punit alone in 10 days = $5 \times 10 = 50$ units

=> Work left = $100 - 50 = 50$ units

∴ Time taken by Amit alone to finish the remaining work = $\frac{50}{4} = 12\frac{1}{2}$ days

=> Ans - (B)

Question 28

The measure of the four successive angles of a quadrilateral are in the ratio 7 : 11 : 7 : 11. The quadrilateral is a _____.

- A trapezium
- B rectangle
- C parallelogram
- D square

Answer: C

Explanation:

Ratio of the four successive angles of a quadrilateral = 7 : 11 : 7 : 11

All the angles are not equal, thus it is neither a rectangle nor a square

But opposite angles are equal, thus the quadrilateral is a parallelogram.

=> Ans - (C)

Question 29

What is the discount percentage offered on a book having marked price Rs 2150 being sold at Rs 1892?

- A 12
- B 13
- C 14
- D 16

Answer: A

Explanation:

Marked price = Rs. 2150

Selling price = Rs. 1892

=> Discount % = $\frac{(2150-1892)}{2150} \times 100$

= $\frac{516}{43} = 12\%$

=> Ans - (A)

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Question 30

Rs 60500 is divided among A, B and C such that A receives $\frac{2}{9}$ as much as B and C together and B receives $\frac{3}{7}$ of as much as A and C together. What is the share of C (in Rs)?

- A 29850

- B 30120
- C 31350
- D 37250

Answer: C

Explanation:

Let A, B and C receive Rs. a, b, c respectively

$$\text{Total amount} = a + b + c = 60500 \text{ -----(i)}$$

$$\text{According to ques, } \Rightarrow a = \frac{2}{9}(b + c)$$

$$\Rightarrow 9a = 2(60500 - a) \quad [\text{Using equation (i)}]$$

$$\Rightarrow 9a = 121000 - 2a$$

$$\Rightarrow 9a + 2a = 11a = 121000$$

$$\Rightarrow a = \frac{121000}{11} = \text{Rs. } 11000$$

$$\text{Similarly, } b = \frac{3}{7}(a + c)$$

$$\Rightarrow 7b = 3(60500 - b)$$

$$\Rightarrow 7b + 3b = 10b = 181500$$

$$\Rightarrow b = \text{Rs. } 18150$$

$$\therefore \text{C's share} = 60500 - 11000 - 18150 = \text{Rs. } 31350$$

\Rightarrow Ans - (C)

Question 31

The average age of a class of 6 girls is x years. Four new girls having ages $x - 2, x + 2, x + 4$ and $x + 6$ joins the class. What is the new average age (in years) of the class?

- A $x + 1$
- B $x + 2$
- C $2.5x$
- D $x + 2.5$

Answer: A

Explanation:

The average age of a class of 6 girls = x years

$$\Rightarrow \text{Total age of 6 girls} = 6x \text{ years}$$

$$\text{Sum of ages of 4 new girls} = (x - 2) + (x + 2) + (x + 4) + (x + 6) = (4x + 10) \text{ years}$$

$$\Rightarrow \text{New average age of 10 girls} = \frac{6x + 4x + 10}{10}$$

$$= \frac{10(x+1)}{10} = x + 1 \text{ years}$$

\Rightarrow Ans - (A)

Question 32

A dealer sells two machines at Rs 12000 each. On one it gains 32% and on the other it loses 32%. What is its profit/loss percentage in the whole transaction?

- A No gain and no loss

- B 1% loss
- C 18% profit
- D 10.24% loss

Answer: D

Explanation:

Selling price of each item = Rs. 12000

Profit % on 1st item = 32%

$$\Rightarrow \text{Cost price of 1st item} = 12000 \times \frac{100}{(100+32)} = \text{Rs. } 9090.90$$

$$\text{Similarly cost price of 2nd item} = 12000 \times \frac{100}{(100-32)} = \text{Rs. } 17647.06$$

$$\Rightarrow \text{Total cost price} = \text{Rs. } (9090.90 + 17647.06) = \text{Rs. } 26737.96$$

and total selling price = Rs. (12000+12000) = Rs. 24000

$$\therefore \text{Loss \%} = \frac{26737.96 - 24000}{26737.96} \times 100$$

$$= 10.24\%$$

\Rightarrow Ans - (D)

SSC CHSL Previous Question papers (download pdf)

Question 33

How much water (in litres) must be added to 80 litres solution of milk and water containing 10% milk, so that it becomes a 5% milk solution?

- A 10
- B 20
- C 40
- D 80

Answer: D

Explanation:

Quantity of mixture = 80 litres

$$\text{Quantity of milk} = \frac{10}{100} \times 80 = 8 \text{ litres}$$

Let x litres of water is added

According to ques,

$$\Rightarrow \frac{5}{100}(x + 80) = 8$$

$$\Rightarrow x + 80 = 8 \times 20 = 160$$

$$\Rightarrow x = 160 - 80 = 80 \text{ litres}$$

\Rightarrow Ans - (D)

Question 34

A bus travels $\frac{2}{5}$ of a total journey at its usual speed. The remaining distance was covered by bus at $\frac{6}{7}$ of its usual speed. Due to slow speed it reaches its destination 50 minutes late. If the total distance is 200 kms, then what is the usual speed (in km/hr) of bus?

- A 20.57

- B** 72
C 56
D 26.52

Answer: B

Explanation:

Let the usual speed of bus = $7x$ km/hr

Total distance = 200 km

Distance travelled at usual speed = $\frac{2}{5} \times 200 = 80$ km

and distance travelled at slow speed = $200 - 80 = 120$ km

Slow speed = $\frac{6}{7} \times 7x = 6x$ km/hr

According to ques,

$$\Rightarrow \frac{120}{6x} - \frac{80}{7x} = \frac{50}{60}$$

$$\Rightarrow \frac{20}{x} - \frac{80}{7x} = \frac{5}{6}$$

$$\Rightarrow \frac{60}{7x} = \frac{5}{6}$$

$$\Rightarrow x = \frac{60}{7} \times \frac{6}{5} = \frac{72}{7}$$

\therefore Usual speed of bus = $7 \times \frac{72}{7} = 72$ km/hr

\Rightarrow Ans - (B)

Question 35

For an amount, simple interest at the rate of interest of 12% per annum for 6 years is Rs 25920. What will be the compound interest (in Rs) on same amount at the rate of interest of 8% per annum compounding annually for 2 years?

- A** 4326.3
B 5563.4
C 5888.6
D 5990.4

Answer: D

Explanation:

Let the principal amount = Rs. $100x$

Rate of interest = 12% and time period = 6 years

$$\Rightarrow S.I. = \frac{P \times r \times t}{100}$$

$$\Rightarrow \frac{100 \times 12 \times 6}{100} = 25920$$

$$\Rightarrow 72x = 25920$$

$$\Rightarrow x = \frac{25920}{72} = 360$$

Thus, amount = $100 \times 360 = Rs. 36000$

\therefore Compound interest at the rate of interest of 8% per annum compounding annually for 2 years

$$= P \left[\left(1 + \frac{r}{100} \right)^t - 1 \right]$$

$$= 36000 \left[\left(1 + \frac{8}{100} \right)^2 - 1 \right]$$

$$\begin{aligned}
 &= 36000\left[\left(\frac{27}{25}\right)^2 - 1\right] \\
 &= 36000\left(\frac{729-625}{625}\right) \\
 &= 57.6 \times 104 = \text{Rs. } 5990.4 \\
 &\Rightarrow \text{Ans - (D)}
 \end{aligned}$$

SSC CPO Previous Question papers (download pdf)

Question 36

If α and β are roots of the equation $3x^2 - 13x + 14 = 0$, then what is the value of $\left(\frac{\alpha}{\beta}\right) + \left(\frac{\beta}{\alpha}\right)$?

- A 65/28
- B 53/14
- C 9
- D 85/42

Answer: D

Explanation:

Equation : $3x^2 - 13x + 14 = 0$ has roots = α and β

$$\text{Sum of roots} = \alpha + \beta = \frac{13}{3} \text{ -----(i)}$$

$$\text{Product of roots} = \alpha\beta = \frac{14}{3} \text{ -----(ii)}$$

To find : $\left(\frac{\alpha}{\beta}\right) + \left(\frac{\beta}{\alpha}\right)$

$$= \frac{\alpha^2 + \beta^2}{\alpha\beta} = \frac{(\alpha + \beta)^2 - 2\alpha\beta}{\alpha\beta}$$

Substituting values from equations (i) and (ii),

$$= \left[\left(\frac{13}{3}\right)^2 - 2\left(\frac{14}{3}\right)\right] \div \left(\frac{14}{3}\right)$$

$$= \left(\frac{169}{9} - \frac{28}{3}\right) \div \left(\frac{14}{3}\right)$$

$$= \left(\frac{85}{9}\right) \times \left(\frac{3}{14}\right)$$

$$= \frac{85}{42}$$

\Rightarrow Ans - (D)

Question 37

If $a + b + c = 9$ and $ab + bc + ca = 18$, then what is the value of $a^3 + b^3 + c^3 - 3abc$?

- A 189
- B 243
- C 361
- D 486

Answer: B

Explanation:

$$\text{Given : } ab + bc + ca = 18 \text{ -----(i)}$$

$$\text{and } a + b + c = 9 \text{ -----(ii)}$$

Squaring both sides, we get :

$$\Rightarrow (a + b + c)^2 = (9)^2$$

$$\Rightarrow (a^2 + b^2 + c^2) + 2(ab + bc + ca) = 81$$

$$\Rightarrow a^2 + b^2 + c^2 + 2(18) = 81$$

$$\Rightarrow a^2 + b^2 + c^2 = 81 - 36 = 45 \text{ -----(iii)}$$

To find : $a^3 + b^3 + c^3 - 3abc$

$$= (a + b + c)(a^2 + b^2 + c^2 - ab - bc - ca)$$

Substituting values from equations (i),(ii) and (iii),

$$= (9)(45 - 18)$$

$$= 9 \times 27 = 243$$

\Rightarrow Ans - (B)

Question 38

If $\left(\frac{x}{y}\right) + \left(\frac{y}{x}\right) = 1$, then what is the value of $x^3 + y^3$?

A - 1

B 0

C 1

D 3

Answer: B

Explanation:

Given : $\frac{x}{y} + \frac{y}{x} = 1$

$$\Rightarrow \frac{x^2 + y^2}{xy} = 1$$

$$\Rightarrow x^2 + y^2 = xy \text{ -----(i)}$$

We know that, $(x^3 + y^3) = (x + y)(x^2 + y^2 - xy)$

Substituting value from equation (i), we get :

$$\Rightarrow (x^3 + y^3) = (x + y)(xy - xy)$$

$$\Rightarrow (x^3 + y^3) = (x + y) \times 0 = 0$$

\Rightarrow Ans - (B)

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Question 39

If $5^x = 30^{-y} = 6^z$, then what is the value of $\frac{(xy+yz+zx)}{xyz}$?

A 0

B 1

C 2

D 3

Answer: A

Explanation:

$$\text{Let } 5^x = 30^{-y} = 6^z = k$$

$$\Rightarrow 5 = k^{\frac{1}{x}}, 30 = k^{-\frac{1}{y}} \text{ and } 6 = k^{\frac{1}{z}}$$

$$\text{Also, } 30 = 5 \times 6$$

$$\Rightarrow k^{-\frac{1}{y}} = k^{\frac{1}{x}} \times k^{\frac{1}{z}}$$

$$\Rightarrow k^{-\frac{1}{y}} = k^{\frac{1}{x} + \frac{1}{z}}$$

$$\Rightarrow -\frac{1}{y} = \frac{1}{x} + \frac{1}{z}$$

$$\Rightarrow \frac{1}{x} + \frac{1}{y} + \frac{1}{z} = 0$$

$$\Rightarrow \frac{yz + zx + xy}{xyz} = 0$$

\Rightarrow Ans - (A)

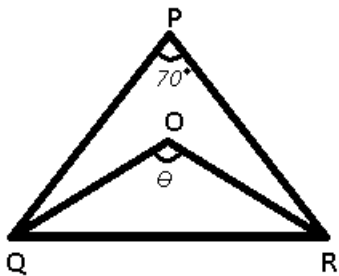
Question 40

The internal bisectors of $\angle Q$ and $\angle R$ of triangle PQR meet at O. If $\angle P = 70^\circ$, then what is the measure of $\angle QOR$ (in degrees)?

- A 110
- B 115
- C 125
- D 135

Answer: C

Explanation:



Given : O is the incentre of $\triangle PQR$ and $\angle P = 70^\circ$

To find : $\angle QOR = \theta = ?$

Incentre of a triangle = $90^\circ + \frac{1}{2} \times (\text{Angle opposite to it})$

$$\Rightarrow \theta = 90^\circ + \frac{70^\circ}{2}$$

$$\Rightarrow \theta = 90^\circ + 35^\circ$$

$$\Rightarrow \theta = 125^\circ$$

\Rightarrow Ans - (C)

Question 41

If the areas of two similar triangle are in the ratio 5 : 7, then what is the ratio of the corresponding sides of these two triangles?

- A 5 : 7
- B 25 : 49

C $\sqrt{5} : \sqrt{7}$

D 125 : 343

Answer: C

Explanation:

Ratio of areas of two similar triangles is equal to the ratio of square of the corresponding sides.

Let the ratio of corresponding sides = $\frac{x}{y}$

$$\Rightarrow \frac{x^2}{y^2} = \frac{5}{7}$$

$$\Rightarrow \left(\frac{x}{y}\right)^2 = \frac{5}{7}$$

$$\Rightarrow \frac{x}{y} = \frac{\sqrt{5}}{\sqrt{7}}$$

\Rightarrow Ans - (C)

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Question 42

ABCD is an isosceles trapezium such that $AD \parallel BC$, $AB = 5$ cm, $AD = 8$ cm and $BC = 14$ cm. What is the area (in cm^2) of trapezium?

A 36

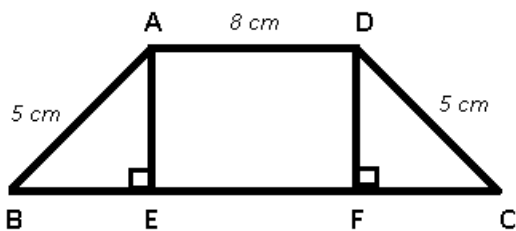
B 44

C 88

D 144

Answer: B

Explanation:



Given : ABCD is an isosceles trapezium and $AB = 5$ cm, $AD = 8$ cm and $BC = 14$ cm

To find : $\text{ar}(ABCD) = ?$

Solution : In an isosceles trapezium $AB = CD$ and $BE = CF$

Also, $AD = EF = 8$ cm

$$\Rightarrow BE + CF = 14 - 8 = 6 \text{ cm}$$

$$\Rightarrow BE = CF = \frac{6}{2} = 3 \text{ cm}$$

In $\triangle ABE$,

$$\Rightarrow (AE)^2 = (AB)^2 - (BE)^2$$

$$\Rightarrow (AE)^2 = (5)^2 - (3)^2$$

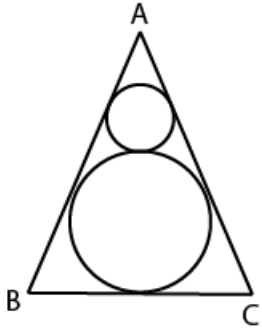
$$\Rightarrow (AE)^2 = 25 - 9 = 16$$

$$\Rightarrow AE = \sqrt{16} = 4 \text{ cm}$$

$$\begin{aligned} \therefore \text{ar}(ABCD) &= \frac{1}{2} \times (AD + BC) \times (AE) \\ &= \frac{1}{2} \times (8 + 14) \times 4 \\ &= 22 \times 2 = 44 \text{ cm}^2 \\ &\Rightarrow \text{Ans - (B)} \end{aligned}$$

Question 43

In the given figure, ABC is an equilateral triangle. If the area of bigger circle is 1386 cm^2 . then what is the area (in cm^2) of smaller circle?



- A 144
- B 154
- C 288
- D 462

Answer: B

Explanation:

Let 'a' be the side of the equilateral triangle then the radius of bigger circle = $3 \times \frac{1}{2} \times \frac{\sqrt{3}a}{2} = 2\sqrt{3}$

Also the radius of smaller circle = $3 \times \frac{1}{6} \times \frac{\sqrt{3}a}{2} = \frac{2\sqrt{3}}{3}$

We can see that ratio of radius of smaller to larger circle is 1 : 3. Hence, the ratio of the area of smaller to larger circle = 1 : 9

Therefore, the area of the smaller circle = $\frac{1386}{9} = 154 \text{ cm}^2$

Question 44

What is the simplified value of $\frac{(\tan^2\theta - \sin^2\theta)}{(\tan^2\theta + \sin^2\theta)}$?

- A -1
- B 0
- C 1
- D 2

Answer: C

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Question 45

If $\sec(3x - 20^\circ) = \operatorname{cosec}(3y + 20^\circ)$, then what is the value of $\tan(x + y)$?

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

Answer: C

Explanation:

Given : $\sec(3x - 20^\circ) = \operatorname{cosec}(3y + 20^\circ)$

$$\Rightarrow \sec(3x - 20^\circ) = \operatorname{cosec}[90^\circ - (-3y + 70^\circ)]$$

$$\therefore \operatorname{cosec}(90^\circ - \theta) = \sec\theta$$

$$\Rightarrow \sec(3x - 20^\circ) = \sec(-3y + 70^\circ)$$

$$\Rightarrow 3x - 20^\circ = -3y + 70^\circ$$

$$\Rightarrow 3x + 3y = 70 + 20 = 90^\circ$$

$$\Rightarrow x + y = \frac{90}{3} = 30^\circ \text{ -----(i)}$$

$$\therefore \tan(x + y) = \tan(30^\circ) = \frac{1}{\sqrt{3}}$$

\Rightarrow Ans - (C)

Question 46

If $\cot A = \frac{n}{n+1}$ and $\cot B = \frac{1}{2n+1}$, then what is the value of $\cot(A + B)$?

- A - 1
- B 0
- C 1
- D 2

Answer: A

Explanation:

Given : $\cot A = \frac{n}{n+1}$ and $\cot B = \frac{1}{2n+1}$

To find : $\cot(A + B)$

$$= \frac{\cot A \cot B - 1}{\cot A + \cot B}$$

$$= \left(\frac{n}{n+1} \times \frac{1}{2n+1} - 1 \right) \div \left(\frac{n}{n+1} + \frac{1}{2n+1} \right)$$

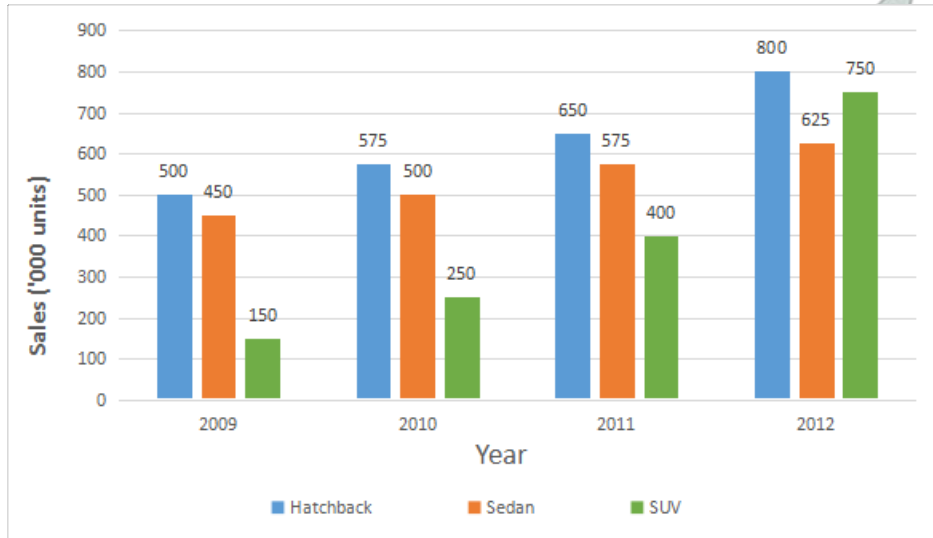
$$= \left(\frac{n}{(n+1)(2n+1)} - 1 \right) \div \left(\frac{n(2n+1) + 1(n+1)}{(n+1)(2n+1)} \right)$$

$$= \left(\frac{n - (n+1)(2n+1)}{(n+1)(2n+1)} \right) \div \left(\frac{2n^2 + n + n + 1}{(n+1)(2n+1)} \right)$$

$$\begin{aligned}
 &= \frac{n-(2n^2+3n+1)}{(n+1)(2n+1)} \times \frac{(n+1)(2n+1)}{2n^2+2n+1} \\
 &= \frac{-2n^2-2n-1}{2n^2+2n+1} = -1 \\
 \Rightarrow \text{Ans - (A)}
 \end{aligned}$$

Instructions

The bar chart given below shows the sales of 3 types of cars in the Indian automotive industry over 4 years. All the sales figures have been shown in terms of '000 units.



Question 47

Which of the following type of car has the highest increase in sales from 2009 to 2012?

- A Hatchback
- B Both SUV and Hatchback
- C SUV
- D Sedan

Answer: C

Explanation:

% increase in sales from 2009 to 2012 of :

$$\text{Hatchback : } \frac{(800-500)}{500} \times 100 = 60\%$$

$$\text{Sedan : } \frac{(625-450)}{450} \times 100 = 41.17\%$$

$$\text{SUV : } \frac{(750-150)}{150} \times 100 = 400\% \quad \text{[MAX]}$$

\Rightarrow Ans - (C)

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Question 48

What is the simple annual growth rate (in %) in the sales of SUV from 2009 to 2012?

- A 90
- B 400

C 133.33

D 150

Answer: B

Explanation:

Sales of SUV (in '000 units) in 2009 = 150

Sales of SUV (in '000 units) in 2012 = 750

$$\Rightarrow \text{Required annual growth rate} = \frac{(750-150)}{150} \times 100$$

$$= 4 \times 100 = 400\%$$

\Rightarrow Ans - (B)

Question 49

What is the respective ratio of total sales of Sedan and total sales of SUV over the period of 4 years ?

A 23 : 31

B 29 : 39

C 43 : 31

D 76 : 47

Answer: C

Explanation:

Total sales of Sedan (in '000 units) over the period of 4 years

$$= 450+500+575+625 = 2150$$

Total sales of SUV (in '000 units) over the period of 4 years

$$= 150+250+400+750 = 1550$$

$$\Rightarrow \text{Required ratio} = \frac{2150}{1550} = \frac{43}{31}$$

\Rightarrow Ans - (C)

Question 50

If all the 3 categories increase by same rate in 2013 over 2012 as they did in 2012 over 2011, then what will be the total approximate sales (in '000 units) of all the 3 categories taken together in year 2013 ?

A 2152

B 2345

C 3069

D 3568

Answer: C

Explanation:

$$\text{Rate of increase of Hatchback from 2011 to 2012} = \frac{(800-650)}{650} \times 100 \approx 23\%$$

$$\Rightarrow \text{Sales of Hatchback in 2013 (in '000 units)} = \frac{(100+23)}{100} \times 800 = 984$$

$$\text{Similarly, rate of increase of Sedan from 2011 to 2012} = \frac{(625-575)}{575} \times 100 \approx 9\%$$

$$\Rightarrow \text{Sales of Sedan in 2013 (in '000 units)} = \frac{(100+9)}{100} \times 625 = 680$$

Rate of increase of SUV from 2011 to 2012 = $\frac{(750-400)}{400} \times 100 \approx 87.5\%$

=> Sales of SUV in 2013 (in '000 units) = $\frac{(100+87.5)}{100} \times 750 = 1406$

∴ Total approximate sales (in '000 units) of all the 3 categories taken together in year 2013

= 984 + 680 + 1406 = 3070 ≈ 3069

=> Ans - (C)

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General Awareness

Instructions

For the following questions answer them individually

Question 51

Which of the following rate is charged by banks to their most credit worthy customers?

- A Prime Lending Rate
- B Statutory Liquidity Rate
- C Bank Rate
- D Repo Rate

Answer: A

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Question 52

Medium term loans are provided for a period of ____.

- A 1 year to 2 years
- B 15 months to 3 years
- C 15 months to 4 years
- D 1 year to 3 years

Answer: D

Question 53

Which of the following is a feature of federal Government?

- A Supremacy of Parliament
- B Supremacy of Judiciary
- C Division of powers between federal and state Government
- D Single citizenship

Answer: C

Question 54

Under which article, President of India can proclaim financial emergency?

- A** Article 32
- B** Article 349
- C** Article 360
- D** Article 355

Answer: C

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Question 55

Who was the founder of the Ghadar Party?

- A** Basant Kumar Biswas
- B** Sohan Singh Bhakna
- C** Ram Prasad Bismil
- D** Bhagat Singh

Answer: B

Question 56

In which year (in AD) was the East India Company established?

- A** 1664
- B** 1632
- C** 1600
- D** 1608

Answer: C

Question 57

Himalayan mountain range falls under which type of mountains?

- A** Block Mountain
- B** Residual Mountain
- C** Accumulated Mountain
- D** Fold Mountain

Answer: D

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Question 58

'Norwesters' are thunder storms which are prominent in ____.

- A India and Bhutan
- B Bhutan and Nepal
- C India and Bangladesh
- D Bangladesh and Myanmar

Answer: C

Question 59

UV rays coming from Sun, majorly causes which cancer?

- A Lungs cancer
- B Liver cancer
- C Mouth cancer
- D Skin cancer

Answer: D

Question 60

Which of the following is the largest mammal?

- A Whale
- B Rhinoceros
- C Elephant
- D Human

Answer: A

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Question 61

What is the full form of RNA?

- A Ribonucleic Acid
- B Ribonitric Acid
- C Ribonutrient Acid
- D Reverse Nucleic Acid

Answer: A

Question 62

At which of the following place, weight of an object is maximum?

- A At poles
- B At equator
- C At tropic of Capricorn
- D At tropic of cancer

Answer: A

Question 63

What is the SI unit of temperature?

- A Kelvin
- B Joule
- C Celsius
- D Fahrenheit

Answer: A

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Question 64

Netscape Navigator is a ____.

- A graphical user interface
- B programming language
- C web browser
- D processor

Answer: C

Question 65

What is nature of pH of Milk?

- A Slightly Acidic
- B Slightly Basic
- C Highly Acidic
- D Highly Basic

Answer: A

Question 66

Which among the following is not an example of emulsion?

- A Chocolate-Milk
- B Butter

C Whipped Cream

D Curd

Answer: D

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Question 67

Kyoto Protocol's (an international treaty to reduce greenhouse gas emissions) first meeting was held at which country?

A USA

B Germany

C Japan

D Switzerland

Answer: C

Question 68

'Lucky Grahak Yojana' and 'Digi Dhan Vyapar Yojana' to give cash awards to the customers and merchants was launched by which government body?

A National Institution for Transforming India

B National Payments Corporation of India

C Financial Stability and Development Council

D Reserve Bank of India

Answer: A

Question 69

Who among the following devised the technique IVF (In vitro Fertilization)?

A Sir Frank Whittle

B Robert Edwards

C Edward Jenner

D Dr. Martin Cooper

Answer: B

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Question 70

'Wimbledon' is a place associated with which sport?

A Lawn tennis

B Badminton

C Hockey

D Cricket

Answer: A

Question 71

Match the following.

Artist

1. Yamini Krishna Murthy
2. M.S. Subbulakshmi
3. Vishnu Diganbar Paluskar
4. Pt. ShivKumar Sharma

Art

- a. Vocalist
- b. Musician
- c. Bharatanatyam
- d. Santoor

A 1-c, 2-a, 3-b, 4-d

B 1-b, 2-a, 3-d, 4-c

C 1-d, 2-c, 3-b, 4-a

D 1-b, 2-c, 3-a, 4-d

Answer: A

Question 72

Who is the recipient of Arjuna Award 2016 in the field of athletics?

A Vikas Gowda

B Lalita Babar

C Neeraj Chopra

D Seema Punia

Answer: B

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Question 73

Six Machine (I Don't Like Cricket ... I Love It)' is an autobiography of which famous batsman?

A Virat Kohli

B AB De Velliers

C Chris Gayle

D Tillakaratne Dilshan

Answer: C

Question 74

Which country is headed towards a confrontation over Gibraltar with Spain?

- A France
- B Morocco
- C Germany
- D United Kingdom

Answer: D

Question 75

Which country has banned 'Facebook' ?

- A China
- B Bhutan
- C Nepal
- D Pakistan

Answer: A

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English

Instructions

For the following questions answer them individually

Question 76

In the following question, some part of the sentence may have errors. Find out which part of the sentence has an error and select the appropriate option. If a sentence is free from error, select 'No error'.

I was shocked to hear (a)/ that her husband (b)/ died of an accident. (c)/ No Error (d)

- A I was shocked to hear
- B that her husband
- C died of an accident
- D No Error

Answer: C

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Question 77

In the following question, some part of the sentence may have errors. Find out which part of the sentence has an error and select the appropriate option. If a sentence is free from error, select 'No error'.

The reason for (a)/ his failure is because (b)/ he didn't study at all. (c)/ No Error (d)

- A The reason for

- B his failure is because
- C he didn't study at all
- D No Error

Answer: B

Question 78

In the following question, the sentence given with blank to be filled in with an appropriate word. Select the correct alternative out of the four and indicate it by selecting the appropriate option.

Virat Kohli added another feather _____ his cap by his wonderful performance in the one day match.

- A in
- B to
- C into
- D on

Answer: B

Question 79

In the following question, the sentence given with blank to be filled in with an appropriate word. Select the correct alternative out of the four and indicate it by selecting the appropriate option.

Only when _____ failed, the army resorted to force.

- A efforts
- B arrests
- C persuasions
- D manipulations

Answer: C

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Question 80

In the following question, out of the four alternatives, select the word similar in meaning to the word given.

Pernicious

- A Beneficial
- B Dangerous
- C Innocuous
- D Advantageous

Answer: B

Question 81

In the following question, out of the four alternatives, select the word similar in meaning to the word given.

Stringent

- A Annoying
- B Revengeful
- C Incidental
- D Rigorous

Answer: D

Question 82

In the following question, out of the four alternatives, select the word opposite in meaning to the word given.

Vexatious

- A Calamitous
- B Treachery
- C Soothing
- D Pliable

Answer: C

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Question 83

In the following question, out of the four alternatives, select the word opposite in meaning to the word given.

Burgeon

- A Bolster
- B Shrivell
- C Mount
- D Amplify

Answer: B

Question 84

In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/Phrase.

Live from hand to mouth

- A Filthy rich people
- B To be dependent on others

- C To have enough money to live on and nothing extra
- D Living in miserable conditions.

Answer: C

Question 85

In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/Phrase.

To face the music

- A To bear the consequences
- B To disparage someone
- C To be hard of hearing
- D To enjoy a musical concert

Answer: A

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Question 86

Improve the bracketed part of the sentence.

He thanked me for what I (have done) for his wife.

- A had done
- B had been done
- C have been done
- D No improvement

Answer: A

Question 87

Improve the bracketed part of the sentence.

(Hardly nothing) was offered to the victims of the earthquake.

- A Hardly something
- B Hardly anything
- C Hardly little
- D No improvement

Answer: B

Question 88

In the following question, out of the four alternatives, select the alternative which is the best substitute of the phrase.

Killing of one's own child

- A Foeticide
- B Filicide
- C Infanticide
- D Lupicide

Answer: B

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Question 89

In the following question, out of the four alternatives, select the alternative which is the best substitute of the phrase.

A lover of work

- A Oenophile
- B Technophile
- C Romanophile
- D Ergophile

Answer: D

Question 90

In the following question, four words are given out of which one word is incorrectly spelt. Find the incorrectly spelt word.

- A Impression
- B Personal
- C Terrorism
- D Illiterate

Answer: B

Question 91

In the following question, four words are given out of which one word is incorrectly spelt. Find the incorrectly spelt word.

- A Stupefaction
- B Preferential
- C Surveillance
- D Detrimental

Answer: C

Question 92

The question below consists of a set of labelled sentences. Out of the four options given, select the most logical order of the sentences to form a coherent paragraph.

P: It has been the handmaid of the ruling class.

Q: Therefore, ever since the dawn of civilization, persons in power have always tried to supervise or control education.

R: Education is an instrument which imparts knowledge and therefore, indirectly controls power.

S: It is an old saying that knowledge is power.

- A SQPR
- B PRQS
- C SRQP
- D PSQR

Answer: C

Question 93

The question below consists of a set of labelled sentences. Out of the four options given, select the most logical order of the sentences to form a coherent paragraph.

P: This is despite the fact that there is a rampant migration of rural families to urban centres.

Q: Generally the gains of being a unit of the urban population are less than the disadvantages and risks that are inbuilt in the urban life.

R: Rural population still dominates the urban population as far as the number is considered.

S: India is a country of villages.

- A QRSP
- B RPQS
- C SRQP
- D QPRS

Answer: C

Question 94

In the following question, a sentence has been given in Active/Passive voice. Out of four alternatives suggested, select the one which best expresses the same sentence in Passive/Active voice.

The residents celebrated Diwali.

- A Celebration of Diwali was done by the residents.
- B Diwali has been celebrated by the residents.
- C Diwali was celebrated by the residents.
- D Diwali is celebrated by the residents.

Answer: C

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Question 95

In the following question, a sentence has been given in Direct/Indirect speech. Out of the four alternatives suggested, select the one which best expresses the same sentence in Indirect/Direct speech.

The foreman said to his workers "I cannot pay you higher wages."

- A The foreman warned his workers that he cannot pay them higher wages.
- B The foreman told his workers that he could not pay them higher wages.
- C The foreman told his workers that they could not be paid higher wages.
- D The foreman forbid his workers to pay higher wages.

Answer: B

Instructions

In the following passage some of the words have been left out. Read the passage carefully and select the correct answer for the given blank out of the four alternatives.

It is not __ (1) __ to ignore all allegations of booth capturing and rigging as murmurs of __ (2) __ losers. __ (3) __ have come to light of intimidation of whole villages and communities to make them vote for a particular candidate or party. At times election officials have been __ (4) __ by unscrupulous politicians into turning a blind eye to __ (5) __ practices.

Question 96

(1)

- A realistic
- B reliable
- C required
- D essential

Answer: A

Question 97

(2)

- A rational
- B disgruntled
- C huge
- D idealist

Answer: B

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Question 98

(3)

- A instances
- B sources

C reasons

D Ideas

Answer: A

Question 99

(4)

A decided

B safeguarded

C rejuvenated

D threatened

Answer: D

Question 100

(5)

A significant

B rare

C unjust

D usual

Answer: C

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