



2017 SSC CGL 09 Aug Shift-3

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Reasoning

Instructions

For the following questions answer them individually

Question 1

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

Ammeter : Current :: ? : ?

- A Scale : Speed
- B Seismograph : Density
- C Barometer : Mass
- D Anemometer : Wind

Answer: D

Explanation:

An ammeter is used to measure current, similarly an anemometer is used to measure wind.

Barometer is used to measure pressure and seismograph is used to measure earthquake.

=> Ans - (D)

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Question 2

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

JPC : GMZ :: PUV : ?

- A MRS
- B MSR
- C MQR
- D RMS

Answer: A

Explanation:

Expression : JPC : GMZ :: PUV : ?

J	P	C
(-3)	(-3)	(-3)
G	M	Z

Similarly,

P	U	V
(-3)	(-3)	(-3)
M	R	S

=> Ans - (A)

Question 3

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

5 : 130 :: 6 : ?

- A 214
- B 212
- C 222
- D 226

Answer: C

Explanation:

Expression = $5 : 130 :: 6 : ?$

The pattern is = $n : n^3 + n$

Eg = $5 : 5^3 + 5 = 5 : 130$

Similarly, $6^3 + 6 = 216 + 6 = 222$

=> Ans - (C)

Question 4

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

- A Quick : Fast
- B Lazy : Slow
- C Credible : Deceptive
- D Exhaust : Tired

Answer: C

Explanation:

Quick is the synonym of fast. Lazy and slow have same meanings. Also, exhaust and tired are synonyms.

But, credible and deceptive are antonyms, thus it's the odd one out.

=> Ans - (C)

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Question 5

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

- A CD
- B PR
- C ST
- D WX

Answer: B

Explanation:

All the words except have 'PR' contain successive letters from English alphabetical series.

=> Ans - (B)

Question 6

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

- A 234
- B 345
- C 243
- D 432

Answer: B

Explanation:

All the given numbers except 345, are divided by 9.

=> Ans - (B)

Question 7

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

1. Globe
2. Group
3. Glitch
4. Gap
5. Glade

- A 42351
- B 45321
- C 43125
- D 45312

Answer: D

Explanation:

As per the dictionary, words are :

= Gap -> Glade -> Glitch -> Globe -> Group

≡ 45312

=> Ans - (D)

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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.
CEG, IKM, OQS, ?

- A UWY
- B UYX
- C UYY
- D TWY

Answer: A

Explanation:

Expression : CEG, IKM, OQS, ?

The difference between the letters in each position is 6 letters.

Eg : C (+6 letters) = I (+6 letters) = O (+6 letters) = U

E (+6 letters) = K (+6 letters) = Q (+6 letters) = W

G (+6 letters) = M (+6 letters) = S (+6 letters) = Y

Thus, missing word = UWY

=> Ans - (A)

Question 9

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

7, 19, 42, 87, ?

A 136

B 176

C 172

D 216

Answer: B

Explanation:

The pattern followed is :

$$7 \times 2 + 5 = 19$$

$$19 \times 2 + 4 = 42$$

$$42 \times 2 + 3 = 87$$

$$87 \times 2 + 2 = 176$$

=> Ans - (B)

Question 10

Present age of A is 2 times the present age of B. After 8 years the B's age will be 4 times of C's present age. If C celebrated his fifth birthday 9 years ago, then what is the present age (in years) of A?

A 88

B 96

C 92

D 84

Answer: B

Explanation:

C celebrated his fifth birthday 9 years ago, => C's present age = $9 + 5 = 14$ years

Also, after 8 years the B's age will be 4 times of C's present age,

$$\Rightarrow \text{B's present age} = (4 \times 14) - 8 = 56 - 8 = 48 \text{ years}$$

Thus, A's age = $2 \times 48 = 96$ years

=> Ans - (B)

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Question 11

Pearl Towers is taller than Sky Towers but shorter than Unity Towers. Unity Towers and Cyber Towers are of same height. Pearl Towers is shorter than Indus Towers. Amongst the buildings, who is the second shortest?

- A Pearl Tower
- B Sky Tower
- C Indus Tower
- D Unity Tower

Answer: A

Explanation:

Let the heights of these towers be represented by P, S, U, I, C

Pearl Towers is taller than Sky Towers but shorter than Unity Towers, $\Rightarrow U > P > S$

Unity Towers and Cyber Towers are of same height, $\Rightarrow C = U > P > S$

Pearl Towers is shorter than Indus Towers, $\Rightarrow I$ is either the tallest or the second tallest building.

Thus, Pearl towers is the second shortest.

\Rightarrow Ans - (A)

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.

Legislator

- A Raise
- B Gist
- C Legal
- D Greater

Answer: D

Explanation:

The word LEGISLATOR does not contain 2 R's and thus the word 'Greater' cannot be formed.

\Rightarrow Ans - (D)

Question 13

In a certain code language, "MATCH" is written as "NYWYM" and "BOARD" is written as "CMDNI". How is "PRINT" written in that code language?

- A YJLPQ
- B ZIMOR
- C ROMIZ
- D QPLJY

Answer: D

Explanation:

"MATCH" is written as "NYWYM"

The pattern followed is :

M	A	T	C	H
(+1)	(-2)	(+3)	(-4)	(+5)
N	Y	W	Y	M

Also, BOARD : CMDNI

B	O	A	R	D
(+1)	(-2)	(+3)	(-4)	(+5)
C	M	D	N	I

Similarly, for PRINT :

P	R	I	N	T
(+1)	(-2)	(+3)	(-4)	(+5)
Q	P	L	J	Y

=> Ans - (D)

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Question 14

If "+" denotes "divided by", "x" denotes "added to", "÷" denotes "subtracted from" and "-" denotes "multiplied by", then $54 + 162 - 18 \times 12 \div 6 = ?$

- A 4
- B 16
- C 12
- D 10

Answer: C

Explanation:

Expression : $54 + 162 - 18 \times 12 \div 6 = ?$

$$\equiv 54 \div 162 \times 18 + 12 - 6$$

$$= \frac{54}{9} + 6$$

$$= 6 + 6 = 12$$

=> Ans - (C)

Question 15

If $(3)^2 @ 1 * 7 = 98$ and $(4)^2 @ 2 * 16 = 178$, then $(5)^2 @ 3 * 9 = ?$

- A 218
- B 262
- C 253
- D 259

Answer: B

Explanation:

The pattern is that '@' is concatenate operator and '*' is used to add.

$$\text{Eg : } (3)^2 @ 1 * 7 = 9 @ 1 + 7 = 91 + 7 = 98$$

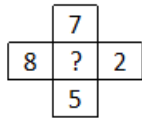
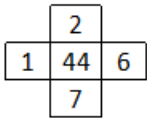
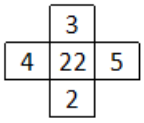
$$\text{and } (4)^2 @ 2 * 16 = 16 @ 2 + 16 = 162 + 16 = 178$$

Similarly, $(5)^2 \times 3 + 9 = 25 \times 3 + 9 = 253 + 9 = 262$

=> 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.



A 54

B 60

C 62

D 66

Answer: D

Explanation:

The middle number is obtained by adding the product of numbers at top and left position and product of numbers at bottom and right position.

Eg : $(4 \times 3) + (2 \times 5) = 12 + 10 = 22$

and $(1 \times 2) + (7 \times 6) = 2 + 42 = 44$

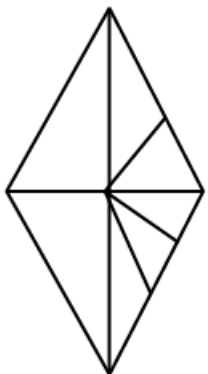
Similarly, $(8 \times 7) + (2 \times 5) = 56 + 10 = 66$

=> Ans - (D)

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Question 17

How many triangles are there in the given figure ?



A 14

B 15

C 16

D 19

Answer: B

Question 18

In each of 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 cups are plate.
- II. No plate is a shop.

Conclusions:

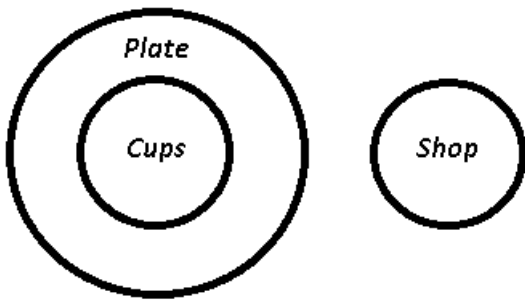
- I. No cup is a shop.
- II. No shop is a plate.

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

Answer: C

Explanation:

The venn diagram of the above statements is :



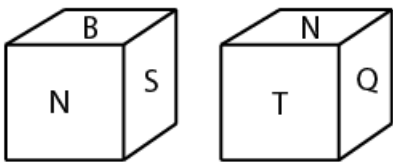
- I. No cup is a shop = true
- II. No shop is a plate = true

Thus, both conclusion follow.

=> Ans - (C)

Question 19

Two positions of a cube are shown below. What will come opposite to face containing 'B' ?



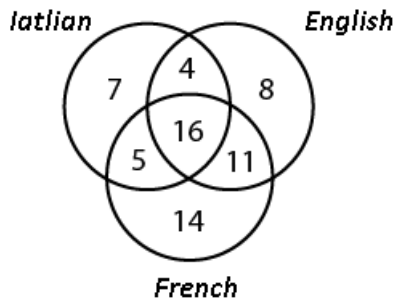
- A Q
- B T
- C S
- D Q or T

Answer: A

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Question 20

In the given figure, how many people speak Italian and French language ?



- A 21
- B 16
- C 27
- D 20

Answer: A

Explanation:

People who speak Italian and French language (intersection of both)

$$= 5 + 16 = 21$$

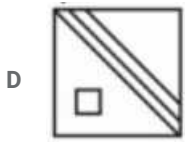
=> Ans - (A)

Question 21

Which answer figure will complete the pattern in the question figure ?



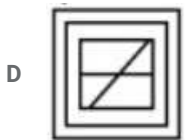
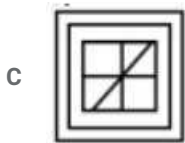
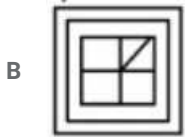
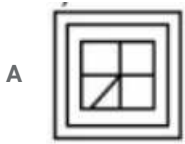
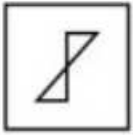
- A
- B
- C



Answer: C

Question 22

From the given answer figures, Select the one in which the question figure is hidden/embedded.

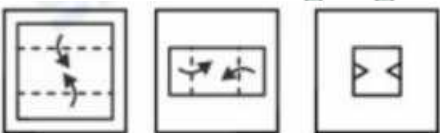


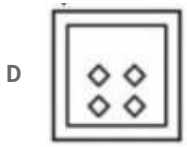
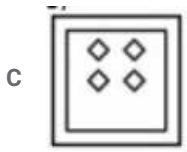
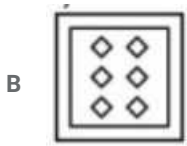
Answer: C

General Science Notes for SSC CGL

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.

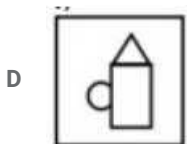
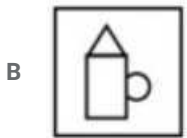
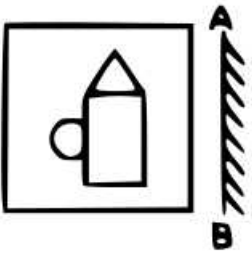




Answer: B

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 ?



Answer: B

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, 'Q' can be represented by 10, 34, etc., and 'I' can be represented by 86, 79, etc. Similarly, you have to identify the set for the word "STAR".

Matrix - I

	0	1	2	3	4
0	P	R	T	Q	S
1	Q	S	P	R	T
2	R	T	Q	S	P
3	S	P	R	T	Q
4	T	Q	S	P	R

Matrix - II

	5	6	7	8	9
5	B	K	D	A	J
6	A	J	B	K	D
7	K	D	A	J	B
8	J	B	K	D	A
9	D	A	J	B	K

- A 42, 03, 89, 13
- B 11, 40, 65, 02
- C 04, 32, 96, 32
- D 30, 21, 77, 44

Answer: D

Explanation:

- (A) : 42, 03, 89, 13 = SQAR
 - (B) : 11, 40, 65, 02 = STAT
 - (C) : 04, 32, 96, 32 = SRAR
 - (D) : 30, 21, 77, 44 = **STAR**
- => Ans - (D)

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Mathematics

Instructions

For the following questions answer them individually

Question 26

How many times the keys of a typewriter have to be pressed in order to write numbers from 121 to 1346?

- A 3675
- B 4018
- C 4021
- D 4025

Answer: D

Explanation:

Total numbers between 121 to 999
= $999 - 121 + 1 = 879$

Since, these are 3 digit numbers, thus to type each number key is pressed 3 times

Thus, keys pressed while writing numbers from 121 to 999 = $879 \times 3 = 2637$

Similarly, numbers between 1000 to 1346

$$= 1346 - 1000 + 1 = 347$$

$$\text{Keys pressed} = 347 \times 4 = 1388$$

$$\therefore \text{Total times the keys are pressed} = 2637 + 1388 = 4025$$

=> Ans - (D)

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Question 27

Sandy and Mandy do $(\frac{8}{13})^{\text{th}}$ part of a work and the rest of the work was completed by Andy. If Sandy, Mandy and Andy take the same work for Rs 2600, then what is the share (in Rs) of Andy?

A 1600

B 1400

C 800

D 1000

Answer: D

Explanation:

Total amount distributed = Rs. 2600

Let total work = 1 unit

$$\Rightarrow \text{Work done by Sandy and Mandy} = \frac{8}{13}$$

$$\Rightarrow \text{Work done by Andy} = 1 - \frac{8}{13} = \frac{5}{13}$$

$$\therefore \text{Share of Andy} = \frac{5}{13} \times 2600 = \text{Rs. } 1000$$

=> Ans - (D)

Question 28

A solid cone of height 24 cm and radius of its base 8 cm is melted to form a solid cylinder of radius 6 cm and height 6 cm. In the whole process what percent of material is wasted?

A 48.5

B 37.5

C 57.8

D 64

Answer: C

Explanation:

Height of cone = $H = 24$ cm and radius of cone = $R = 8$ cm

$$\Rightarrow \text{Volume of cone} = \frac{1}{3} \pi R^2 H$$

$$= \frac{1}{3} \pi (8)^2 \times 24$$

$$= \pi \times 64 \times 8 = 512\pi \text{ cm}^3$$

Height of cylinder = $h = 6$ cm and radius = $r = 6$ cm

$$\Rightarrow \text{Volume of cylinder} = \pi r^2 h$$

$$= \pi \times (6)^2 \times 6 = 216\pi \text{ cm}^3$$

$$\therefore \% \text{ material wasted} = \frac{(512-216)}{512} \times 100$$

$$= \frac{37}{64} \times 100 = 57.8\%$$

\Rightarrow Ans - (C)

Question 29

If two successive discounts of 20% and 30% are given, then what is the net discount (in %)?

- A 40
- B 44
- C 56
- D 60

Answer: B

Explanation:

Let list price = Rs. $100x$

$$\text{After first discount of 20\%, price} = 100x \times \frac{(100-20)}{100} = 80x$$

$$\text{After second discount of 30\%, price} = 80x \times \frac{(100-30)}{100} = 56x$$

$$\Rightarrow \text{Equivalent discount} = \frac{100x-56x}{100x} \times 100$$

$$= 44\%$$

\Rightarrow Ans - (B)

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Question 30

In what ratio sugar at Rs 30/kg should be mixed with sugar at Rs 45/kg so that on selling the mixture at Rs 42/kg there is a profit of 20%?

- A 2 : 1
- B 2 : 3
- C 5 : 2
- D 3 : 7

Answer: A

Explanation:

Selling price = 42/kg and profit % = 20%

$$\Rightarrow \text{Cost price} = 42 \times \frac{100}{(100+20)}$$

$$= 42 \times \frac{5}{6} = \text{Rs. } 35$$

Let the quantity in which Rs. 30/kg sugar is mixed be x kg and Rs. 45/kg sugar is mixed = y kg

According to ques,

$$\Rightarrow 30x + 45y = 35(x + y)$$

$$\Rightarrow 6x + 9y = 7x + 7y$$

$$\Rightarrow 7x - 6x = 9y - 7y$$

$$\Rightarrow x = 2y$$

$$\Rightarrow \frac{x}{2} = y = 1$$

\Rightarrow Ans - (A)

Question 31

Average of 11 numbers is 7. If every number is doubled, then what will be the new average of the numbers?

A 3.5

B 7

C 10.5

D 14

Answer: D

Explanation:

Average of 11 numbers = 7

$$\Rightarrow \text{Sum of 11 numbers} = 7 \times 11 = 77$$

If each number is doubled, then new sum = $77 \times 2 = 154$

$$\therefore \text{New average} = \frac{154}{11} = 14$$

\Rightarrow Ans - (D)

Question 32

A trader sold an article at profit of 20%. Had he bought that article at 60% less price and sold it at Rs 90 less, then he would have gained 50%. What is the value (in Rs) of cost price?

A 150

B 200

C 250

D 300

Answer: A

Explanation:

Let cost price of article = Rs. $100x$

Profit % = 20%

$$\Rightarrow \text{Selling price} = 100x + \left(\frac{20}{100} \times 100x\right) = \text{Rs. } 120x$$

$$\text{If article is bought at 60\% less price, } \Rightarrow \text{Cost price} = \frac{(100-60)}{100} \times 100x = \text{Rs. } 40x$$

$$\text{Thus, selling price after 50\% profit} = \frac{150}{100} \times 40x = \text{Rs. } 60x$$

According to ques, $\Rightarrow 60x = 120x - 90$

$$\Rightarrow 120x - 60x = 60x = 90$$

$$\Rightarrow x = \frac{90}{60} = 1.5$$

$$\therefore \text{Cost price} = 100 \times 1.5 = \text{Rs. } 150$$

=> Ans - (A)

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Question 33

Amit donated 20% of his income to a school and deposited 20% of the remainder in his bank. If he is having Rs 12800 now, then what is the income (in Rs) of Amit?

- A 18000
- B 20000
- C 24000
- D 32000

Answer: B

Explanation:

Let Amit's income = Rs. $100x$

Amount donated to school = $\frac{20}{100} \times 100x = Rs. 20x$

Amount left = Rs. $(100x - 20x) = Rs. 80x$

Amount deposited in bank = $\frac{20}{100} \times 80x = Rs. 16x$

Amount left = Rs. $(80x - 16x) = Rs. 64x$

According to ques, => $64x = 12800$

=> $x = \frac{12800}{64} = 200$

∴ Amit's income = $100 \times 200 = Rs. 20,000$

= Ans - (B)

Question 34

Two trains are moving in the opposite directions at speed of 43 km/h and 51 km/h respectively. The time taken by the slower train to cross a man sitting in the faster train is 9 seconds. What is the length (in metres) of the slower train?

- A 235
- B 338.4
- C 470
- D 940

Answer: A

Explanation:

Speed of the two trains = 43 km/h and 51 km/h

Since the trains are moving in opposite directions, => Relative speed = $43 + 51 = 94$ km/h

= $(94 \times \frac{5}{18})$ m/s = $(\frac{235}{9})$ m/s

Since the observation given is of a passenger sitting in faster train, distance travelled is equal to length of the slower train. Let it be = d m

Using, distance = speed x time

=> $d = \frac{235}{9} \times 9 = 235$ m

=> Ans - (A)

Question 35

A certain sum of money amounts to Rs 918 in 2 years and Rs 969 in 3.5 years at simple interest. What is the rate of interest (in %)?

- A 4
- B 5
- C 6
- D 8

Answer: A

Explanation:

Let sum of money = Rs. $100x$ and rate of interest = $r\%$

Amount under simple interest = $P + \frac{P \times r \times t}{100}$

In 2 years, sum amounts to Rs. 918

$$\Rightarrow 100x + \frac{100x \times r \times 2}{100} = 918$$

$$\Rightarrow 100x + 2rx = 918 \text{ -----(i)}$$

Similarly, after 3.5 years, $\Rightarrow 100x + \frac{100x \times r \times 3.5}{100} = 969$

$$\Rightarrow 100x + 3.5rx = 969 \text{ -----(ii)}$$

Subtracting equation (i) from (ii),

$$\Rightarrow 1.5rx = 969 - 918 = 51$$

$$\Rightarrow rx = \frac{51}{1.5} = 34 \text{ -----(iii)}$$

Substituting it in equation (i), $\Rightarrow 100x = 918 - 2(34) = 850$

$$\Rightarrow x = \frac{850}{100} = 8.5$$

Substituting it in equation (iii), we get : $r = \frac{34}{8.5} = 4\%$

\Rightarrow Ans - (A)

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Question 36

If $4^{(x+y)} = 256$ and $(256)^{(x-y)} = 4$, then what is the value of x and y?

- A $\frac{17}{8}, \frac{15}{8}$
- B $\frac{17}{4}, \frac{15}{4}$
- C $\frac{9}{17}, \frac{15}{17}$
- D $\frac{8}{17}, \frac{8}{15}$

Answer: A

Explanation:

Given : $4^{(x+y)} = 256$

$$\Rightarrow 4^{(x+y)} = 4^4$$

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

Similarly, $(256)^{(x-y)} = 4$

$$\Rightarrow 4^{4(x-y)} = 4^1$$

$$\Rightarrow (x - y) = \frac{1}{4} \text{ -----(ii)}$$

Adding equations (i) and (ii), we get :

$$\Rightarrow 2x = 4 + \frac{1}{4} = \frac{17}{4}$$

$$\Rightarrow x = \frac{17}{8}$$

Substituting it in equation (i), $\Rightarrow y = 4 - \frac{17}{8} = \frac{32-17}{8}$

$$\Rightarrow y = \frac{15}{8}$$

\Rightarrow Ans - (A)

Question 37

If the expression $px^3 - qx^2 - 7x - 6$ is completely divisible by $x^2 - x - 6$, then what is the value of p and q respectively?

A 0, 1

B 1, 0

C 2, 1

D 1, 2

Answer: B

Explanation:

Expression : $f(x)px^3 - qx^2 - 7x - 6$ is divisible by $x^2 - x - 6$

$$\Rightarrow x^2 - x - 6 = 0$$

$$\Rightarrow (x - 3)(x + 2) = 0$$

$$\Rightarrow x = 3, -2$$

Thus, $f(3) = 0$

$$\Rightarrow p(3)^3 - q(3)^2 - 7(3) - 6 = 0$$

$$\Rightarrow 27p - 9q - 21 - 6 = 0$$

$$\Rightarrow 27p - 9q = 27$$

$$\Rightarrow 3p - q = 3 \text{ -----(i)}$$

Also, $f(-2) = 0$

$$\Rightarrow p(-2)^3 - q(-2)^2 - 7(-2) - 6 = 0$$

$$\Rightarrow -8p - 4q + 14 - 6 = 0$$

$$\Rightarrow 8p + 4q = 8$$

$$\Rightarrow 2p + q = 2 \text{ -----(ii)}$$

Adding equations (i) and (ii),

$$\Rightarrow 5p = 3 + 2 = 5$$

$$\Rightarrow p = 1$$

Substituting it in equation (ii), $\Rightarrow q = 2 - 2(1) = 0$

\Rightarrow Ans - (B)

Question 38

If the expression $px^3 - 2x^2 - qx + 18$ is completely divisible by $(x^2 - 9)$, then what is the ratio between p and q respectively?

- A 1:9
- B 1:3
- C 3:1
- D 9:1

Answer: A

Explanation:

Expression : $f(x) = px^3 - 2x^2 - qx + 18$ is divisible by $(x^2 - 9)$

$$\Rightarrow x^2 - 9 = 0$$

$$\Rightarrow x^2 = 9$$

$$\Rightarrow x = \sqrt{9} = 3$$

Thus, $f(3) = 0$

$$\Rightarrow p(3)^3 - 2(3)^2 - q(3) + 18 = 0$$

$$\Rightarrow 27p - 18 - 3q + 18 = 0$$

$$\Rightarrow 27p = 3q$$

$$\Rightarrow \frac{p}{q} = \frac{3}{27} = \frac{1}{9}$$

\Rightarrow Ans - (A)

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Question 39

If $x + \frac{1}{x} = 5$, then what is the value of $x^5 + \frac{1}{x^5}$?

- A 1875
- B 2525
- C 2530
- D 3120

Answer: B

Explanation:

Given : $x + \frac{1}{x} = 5$ -----(i)

Squaring both sides,

$$\Rightarrow \left(x + \frac{1}{x}\right)^2 = (5)^2$$

$$\Rightarrow x^2 + \frac{1}{x^2} + 2\left(x\right)\left(\frac{1}{x}\right) = 25$$

$$\Rightarrow x^2 + \frac{1}{x^2} = 25 - 2 = 23$$
 -----(ii)

Now, cubing equation (i), we get :

$$\Rightarrow \left(x + \frac{1}{x}\right)^3 = (5)^3$$

$$\Rightarrow x^3 + \frac{1}{x^3} + 3\left(x\right)\left(\frac{1}{x}\right)\left(x + \frac{1}{x}\right) = 125$$

$$\Rightarrow x^3 + \frac{1}{x^3} + 3(5) = 125$$

$$\Rightarrow x^3 + \frac{1}{x^3} = 125 - 15 = 110 \text{ -----(iii)}$$

Multiplying equations (ii) and (iii),

$$\Rightarrow (x^2 + \frac{1}{x^2})(x^3 + \frac{1}{x^3}) = 23 \times 110$$

$$\Rightarrow x^5 + \frac{1}{x^5} + x + \frac{1}{x} = 2530$$

$$\Rightarrow x^5 + \frac{1}{x^5} + 5 = 2530$$

$$\Rightarrow x^5 + \frac{1}{x^5} = 2530 - 5 = 2525$$

\Rightarrow Ans - (B)

Question 40

In triangle ABC, $\angle ABC = 90^\circ$. BP is drawn perpendicular to AC. If $\angle BAP = 50^\circ$, then what is the value (in degrees) of $\angle PBC$?

A 30

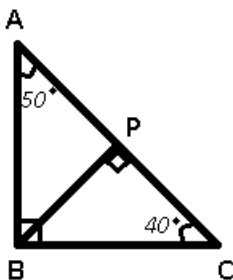
B 45

C 50

D 60

Answer: C

Explanation:



Given : $\angle ABC = \angle BPC = 90^\circ$ and $\angle BAP = 50^\circ$

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

Solution : In $\triangle ABC$,

$$\Rightarrow \angle BAC + \angle ABC + \angle ACB = 180^\circ$$

$$\Rightarrow 50^\circ + 90^\circ + \angle ACB = 180^\circ$$

$$\Rightarrow \angle ACB = 180 - 140 = 40^\circ$$

Similarly, in $\triangle BPC$

$$\Rightarrow \angle BPC + \angle PBC + \angle PCB = 180^\circ$$

$$\Rightarrow 90^\circ + \theta + 40^\circ = 180^\circ$$

$$\Rightarrow \theta = 180 - 130 = 50^\circ$$

\Rightarrow Ans - (C)

Question 41

In triangle PQR, the sides PQ and PR are produced to A and B respectively. The bisectors of $\angle AQR$ and $\angle BRQ$ intersect at point O. If $\angle QOR = 50^\circ$, then what is the value (in degrees) of $\angle QPR$?

A 50

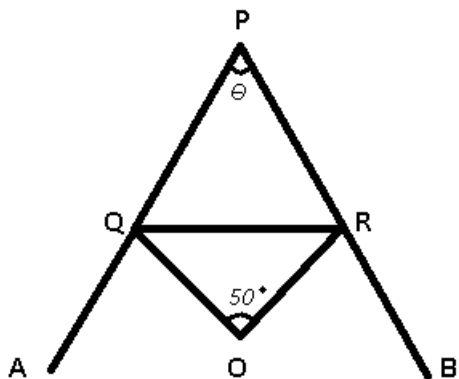
B 60

C 80

D 100

Answer: C

Explanation:



Given : O is the excentre of $\triangle PQR$ and $\angle QOR = 50^\circ$

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

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

$$\Rightarrow 50^\circ = 90^\circ - \frac{\theta}{2}$$

$$\Rightarrow \frac{\theta}{2} = 90 - 50 = 40^\circ$$

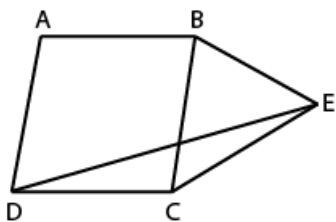
$$\Rightarrow \theta = 2 \times 40 = 80^\circ$$

\Rightarrow Ans - (C)

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Question 42

In the given figure, ABCD is a rhombus and BCE is an isosceles triangle, with $BC = CE$, $\angle CBE = 84^\circ$ and $\angle ADC = 78^\circ$, then what is the value (in degrees) of $\angle DEC$?



A 20

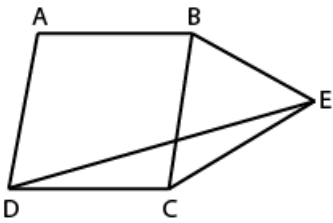
B 28

C 33

D 36

Answer: C

Explanation:



Given : $BC = CE$, $\angle CBE = 84^\circ$ and $\angle ADC = 78^\circ$

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

Solution : Adjacent angles of a rhombus are supplementary

$$\Rightarrow \angle ADC + \angle BCD = 180^\circ$$

$$\Rightarrow \angle BCD = 180 - 78 = 102^\circ \text{ -----(i)}$$

$\triangle BCE$ is an isosceles triangle with $BC = CE$, $\Rightarrow \angle CBE = \angle CEB = 84^\circ$

Thus, in $\triangle BCE$,

$$\Rightarrow \angle CBE + \angle CEB + \angle BCE = 180^\circ$$

$$\Rightarrow \angle BCE = 180 - 84 - 84 = 12^\circ \text{ -----(ii)}$$

Adding equations (i) and (ii),

$$\Rightarrow \angle BCD + \angle BCE = 102 + 12$$

$$\Rightarrow \angle DCE = 114^\circ$$

Now, ABCD is a rhombus and $BC = CE$, $\Rightarrow CD = CE$ and thus CDE is an isosceles triangle with $\angle CDE = \angle DEC = \theta$

In $\triangle CDE$

$$\Rightarrow \theta + \theta + \angle DCE = 180^\circ$$

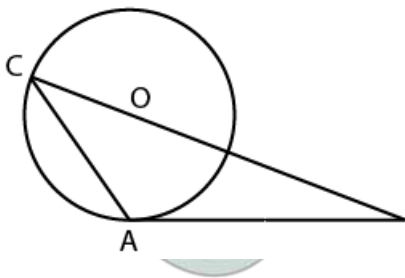
$$\Rightarrow 2\theta = 180 - 114 = 66^\circ$$

$$\Rightarrow \theta = \frac{66}{2} = 33^\circ$$

\Rightarrow Ans - (C)

Question 43

In the given figure, triangle ABC is drawn such that AB is tangent to a circle at A whose radius is 10 cm and BC passes through centre of the circle. Point C lies on the circle. If $BC = 36$ cm and $AB = 24$ cm .then what is the area (in cm^2) of triangle ABC?



A 134.5

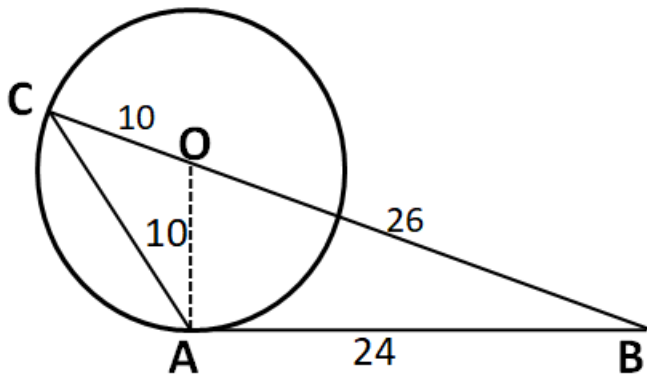
B 148

C 166.15

D 180

Answer: C

Explanation:



In right angle triangle OAB

$$OA = 10 \quad OB = 13$$

$$\sin B = \frac{OA}{OB} = \frac{10}{13}$$

In triangle ABC, Area of triangle = $\frac{1}{2} * AB * BC \sin B$

$$\Rightarrow \frac{1}{2} * 24 * 26 * \frac{10}{13} = 240$$

Question 44

What is the simplified value of $(\cot^2 A + \tan^2 A)$?

A $\sin A$

B $\cos^2 A$

C $\cos^2 A$

D $2\sin^2 A$

Answer: A

Explanation:

$$\text{Expression: } (\cot^2 A + \tan^2 A)$$

$$= (2) \div \left(\frac{\cos^2 A}{\sin^2 A} + \frac{\sin^2 A}{\cos^2 A} \right)$$

$$= (2) \div \left(\frac{\sin^2 A + \cos^2 A}{\sin^2 A \cos^2 A} \right)$$

$$= 2 \times \sin^2 A \cos^2 A$$

$$= \sin 2A \quad [\because 2\sin\theta\cos\theta = \sin 2\theta]$$

=> Ans - (A)

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Question 45

What is the simplified value of $(\sec A + \tan A)^2$?

A $\sec A + \tan A$

B $\sin A - \cos A$

C $\frac{1-\sin A}{1+\sin A}$

D $\frac{1-\cos A}{1+\cos A}$

Answer: C

Explanation:

Expression : $(\sec A + \tan A)^2$

$= \left(\frac{1}{\cos A} + \frac{\sin A}{\cos A} \right)^2$

$= \left(\frac{\cos A + \sin A}{\cos A} \right)^2 = \frac{(\cos A + \sin A)^2}{\cos^2 A}$

$= \frac{1 - \sin^2 A}{(1 + \sin A)^2} = \frac{(1 - \sin A)(1 + \sin A)}{(1 + \sin A)^2}$

$= \frac{1 - \sin A}{1 + \sin A}$

=> Ans - (C)

Question 46

What is the simplified value of $(\operatorname{cosec}^4 A - \cot^2 A) - (\cot^4 A + \operatorname{cosec}^2 A)$?

A 0

B 5

C 6

D 9

Answer: A

Explanation:

Expression : $(\operatorname{cosec}^4 A - \cot^2 A) - (\cot^4 A + \operatorname{cosec}^2 A)$

$= (\operatorname{cosec}^4 A - \cot^4 A) + (-\operatorname{cosec}^2 A - \cot^2 A)$

$= [(\operatorname{cosec}^2 A + \cot^2 A)(\operatorname{cosec}^2 A - \cot^2 A)] + (-\operatorname{cosec}^2 A - \cot^2 A)$

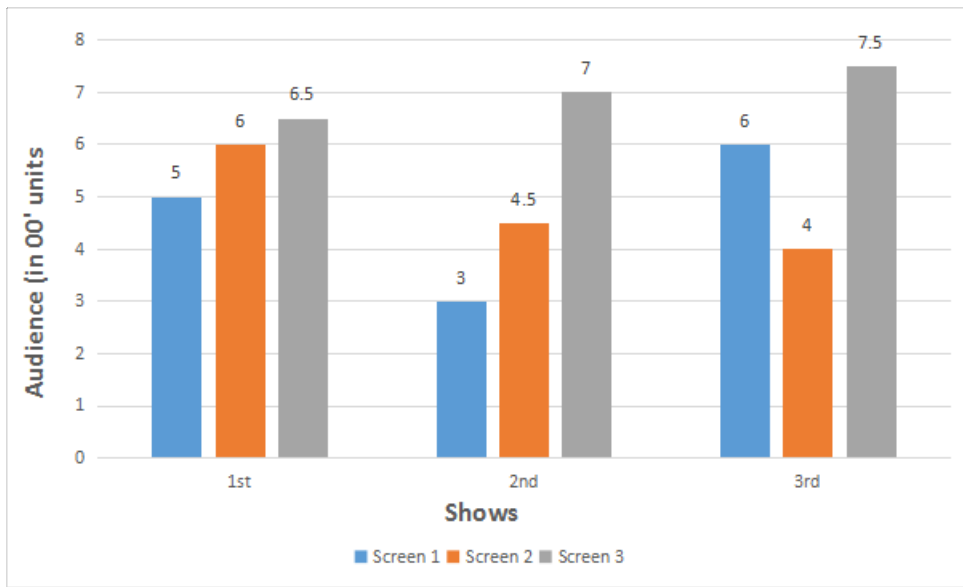
Using, $(\operatorname{cosec}^2 A - \cot^2 A = 1)$

$= (\operatorname{cosec}^2 A - \operatorname{cosec}^2 A) + (\cot^2 A - \cot^2 A) = 0$

=> Ans - (A)

Instructions

The bar chart given below shows the number of audience in a multiscreen theatre for 3 shows.



Question 47

What is the percentage increase in the number of audience in Screen 1 from second show to third show?

- A 50
- B 100
- C 120
- D 150

Answer: B

Explanation:

In screen 1,

Number of audience from 2nd show (in '00 units) = 3

Number of audience from 3rd show (in '00 units) = 6

$$\Rightarrow \% \text{ increase} = \frac{(6-3)}{3} \times 100$$

$$= 100\%$$

\Rightarrow Ans - (B)

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Question 48

For the second show the number of audience in Screen 3 is how much more than the number of audience in Screen 1 ?

- A 500
- B 350
- C 400
- D 450

Answer: C

Explanation:

For the 2nd show,

Number of audience in Screen 3 = 700

Number of audience in Screen 1 = 300

=> Required difference = 700 - 300 = 400

=> Ans - (C)

Question 49

What is the percentage increase in the total number of audience from second show to third show?

A 20.69

B 25.13

C 22.24

D 18.15

Answer: A

Explanation:

Total audience in 2nd show (in '00 units) = 3+4.5+7 = 14.5

Total audience in 3rd show (in '00 units) = 6+4+7.5 = 17.5

=> % increase = $\frac{(17.5-14.5)}{14.5} \times 100$

= $\frac{300}{14.5} = 20.69\%$

=> Ans - (A)

Question 50

If the tickets for Screen 1, Screen 2 and Screen 3 are Rs 350, Rs 300 and Rs 250 respectively, then which screen has the maximum total revenue for three shows?

A Screen 1

B Screen 1 and Screen 3

C Screen 2

D Screen 3

Answer: D

Explanation:

Ticket price for screen 1 = Rs. 350

Total audience for screen 1 = 500+300+600=1400

=> Revenue for screen 1 = $350 \times 1400 = Rs. 490,000$

Similarly, revenue for screen 2 = $300 \times (600 + 450 + 400) = Rs. 435,000$

Revenue for screen 3 = $250 \times (650 + 700 + 750) = Rs. 525,000$ [MAX]

=> Ans - (D)

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General Awareness

Instructions

For the following questions answer them individually

Question 51

When there is only one buyer and one seller of product, it is called _____ situation.

- A Public monopoly
- B Bilateral monopoly
- C Franchised monopoly
- D Monopsony

Answer: B

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Question 52

Which among the following sponsors Regional Rural Banks (RRB'S)?

- A Reserve Bank of India
- B Foreign Banks
- C National Commercial Banks
- D Co-Operative Banks

Answer: C

Question 53

Which of the following has the supreme command of the Indian Defence Forces?

- A Prime Minister of India
- B Defence Minister of India
- C Council of Ministers of India
- D President of India

Answer: D

Question 54

Anti-defection law is given in which schedule of Indian constitution?

- A Second Schedule
- B Tenth Schedule
- C Third Schedule
- D Fourth Schedule

Answer: B

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Question 55

Who was the founder of Banaras Hindu University?

- A Sukumar Dutt
- B Madan Mohan Malvia
- C Dr. Rajendra Prasad
- D Motilal Nehru

Answer: B

Question 56

The second Battle of Tarain was fought between _____.

- A Alexander and Porus
- B Jai Chand and Mohammed Ghori
- C Akbar and Hemu
- D Mohammed Ghori and Prithviraj Chauhan

Answer: D

Question 57

Which is the most abundant metal on Earth's crust?

- A Magnesium
- B Iron
- C Copper
- D Aluminium

Answer: D

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Question 58

Soil having high content of aluminum and iron oxide is also known as _____.

- A meadow soil
- B pedalfer soil
- C chernozen soil
- D podzol soil

Answer: B

Question 59

Red rot is a disease caused to which of the following plant?

- A Paddy
- B Sugarcane
- C Mustard
- D Wheat

Answer: B

Question 60

Which among the following is not a connective tissue?

- A Blood
- B Bone
- C Skin
- D Cartilage

Answer: C

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Question 61

Which of the following micro-organism causes diseases like polio and chicken pox?

- A Bacteria
- B Protozoa
- C Algae
- D Virus

Answer: D

Question 62

Convex mirror is generally used in _____.

- A solar cookers
- B ophthalmoscope
- C reflector for head light
- D rear view mirror

Answer: D

Question 63

What is the SI unit of frequency?

- A Newton
- B Watt

C Farad

D Hertz

Answer: D

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Question 64

Which among the following is a 'Modifier key'?

A Control

B Shift

C Alt

D All options are correct

Answer: D

Question 65

Which of the following is an Inert Gas?

A Hydrogen

B Nitrogen

C Oxygen

D Argon

Answer: D

Question 66

Ozone is an _____ of oxygen.

A Allotrope

B Isotope

C Isobar

D Isotone

Answer: A

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Question 67

Red data book contains data of which of the following?

A All plant species

B All animal species

C All endangered species

D All extinct species

Answer: C

Question 68

Union Cabinet approves amendments in M-SIPS to attract investment in electronics manufacturing. What is the full form of M-SIPS?

A Modified Sustainable Investment Package Scheme

B Modified Special Information Package Scheme

C Modified Special Incentive Package Scheme

D Modern Socialist Incentive Package Scheme

Answer: C

Question 69

Who was the inventor of frozen foods?

A Alfred Nobel

B Clarence Birdseye

C Frank Whittle

D Ives McGaffey

Answer: B

General Science Notes for SSC CGL

Question 70

Match the following.

Term	Sport
1. Birdie	a. Tennis
2. Volley	b. Cricket
3. Hit Wicket	c. Golf

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

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

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

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

Answer: B

Question 71

The Mosque with "shaking minarets" is situated in which Indian city?

A Kanpur

B Ahmedabad

C Jaipur

D Ranchi

Answer: B

Question 72

Who among the following was awarded with Padma Shri 2017 in the field of 'Culinary'?

A Sanjeev Kapoor

B Vikas Khanna

C Ranveer Brar

D Kunal Kapur

Answer: A

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Question 73

'The World Outside My Window' is written by which author?

A Emily Bronte

B Ruskin Bond

C I. Jan Austen

D Henry Fielding

Answer: B

Question 74

Due to increased weapon launching missions of North Korea, which country has launched a spy satellite to monitor it?

A South Korea

B USA

C China

D Japan

Answer: D

Question 75

With which of the following country, India has a land dispute near Tawang?

A Pakistan

B China

C Afghanistan

D Bangladesh

Answer: B

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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'.

My brother finds it difficult (a)/ to pass away the time (b)/ at our grandparent's house. (c)/ No Error (d)

- A My brother finds it difficult
- B to pass away the time
- C at our grandparent's house
- D No Error

Answer: B

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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'.

No sooner had he finished (a)/ his morning walk (b)/ when it began to rain. (c)/ No Error (d)

- A No sooner had he finished
- B his morning walk
- C when it began to rain
- D No Error

Answer: C

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.

_____ you work hard, you cannot succeed.

- A If
- B Till
- C Until
- D Unless

Answer: D

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.

Corruption is a standing hindrance _____ the nation's development.

- A of
- B over
- C to
- D upon

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.

Lethargy

- A Activity
- B Drowsy
- C Modest
- D Pleasure

Answer: B

Question 81

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

Hoodwink

- A Defraud
- B Illicit
- C Secret
- D Stare

Answer: A

Question 82

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

Multifaceted

- A Adroit
- B Handy
- C Pliable
- D Simple

Answer: D

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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.

Trepidation

- A Bold
- B Calm
- C Fear
- D Violent

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.

Kick the bucket

- A Loose temper
- B To delay a little longer
- C To die
- D To meet with an accident

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.

An axe to grind

- A To act bravely
- B To act like a fool
- C To have a selfish motive
- D To take risk

Answer: C

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Question 86

Improve the bracketed part of the sentence.

We (are looking forward for) a positive response from you.

- A are looking forward to

- B have been looking forward at
- C should look forward at
- D No improvement

Answer: A

Question 87

Improve the bracketed part of the sentence.

He (promised to mend) his ways.

- A had a promised to mending
- B promised for mending
- C was promised of mending
- D No improvement

Answer: D

Question 88

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

One who is determined to take full revenge for wrongs done to him

- A Enmity
- B Nigger
- C Pedantic
- D Vindictive

Answer: D

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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.

Just punishment for wrong doing

- A Dandy
- B Nemesis
- C Prodigy
- D Wagon

Answer: B

Question 90

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

- A Continuous

- B Glamoros
- C Meticulous
- D Vicious

Answer: B

Question 91

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

- A Secondary
- B Sizable
- C Succumb
- D Sustanence

Answer: D

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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- To those who have known comfort, discomfort is a real torture.
- Q- Comfort is now one of the causes of its own spread.
- R- The more comfort is brought into the world, the more it is likely to be valued.
- S- It has now become a physical habit, a fashion, an ideal to be pursued for its own sake.

- A QRSP
- B QPRS
- C QPSR
- D QSRP

Answer: D

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- In that frame of mind, we have little sense of identity, safety or security.
- Q- Courage is required to explore our secret life because we must first withdraw from the social mirror, where we are fed positive and negative feedback continuously.
- S- As we get used to this social feedback, it becomes a comfort zone.
- R- And we may opt to avoid self examination and idle away our time in a vacuum of reverie and rationalization.

- A QSRP
- B QRSP
- C SQRP
- D SRQP

Answer: A

Question 94

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

The kids were laughing at the old lady.

- A The old lady is laughing at the kids.
- B The old lady was being laughed at by the kids.
- C The old lady was being laughed by the kids.
- D The old lady was laughed at by the kids.

Answer: B

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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.

"Do you want some more chocolates?" asked my cousin.

- A My cousin asked me if I want some more chocolates.
- B My cousin said to me if I wanted some more chocolates.
- C My cousin asked me that I wanted some more chocolates.
- D My cousin asked me whether I wanted some more chocolates.

Answer: D

Instructions

In the following questions, 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.

An independent, able and upright judiciary is the hallmark of a free ___(1)___ country therefore, the process of judicial appointment is of ___(2)___ importance. At present on account of the Supreme Court's last advisory opinion, the ___(3)___ of the executive and its interference in the appointment of judges is ___(4)___ which in light of previous is most ___(5)___.

Question 96

(1)

- A autocratic
- B democratic
- C liberal
- D participative

Answer: B

Question 97

(2)

- A mere
- B mourn
- C social
- D vital

Answer: D

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Question 98

(3)

- A career
- B future
- C role
- D plight

Answer: C

Question 99

(4)

- A maximum
- B minimal
- C negotiable
- D reasonable

Answer: B

Question 100

(5)

- A adhered
- B neglected
- C rejected
- D welcomed

Answer: D

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