



SSC CHSL 10 Jan 2017 Morning Shift

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Reasoning

Instructions

For the following questions answer them individually

Question 1

Select the related word/letters/number from the given alternatives.

Ctrl+X : Cut :: Ctrl+C : ?

- A Undo
- B Paste
- C Redo
- D Copy

Answer: D

Explanation:

Expression = Ctrl+X : Cut :: Ctrl+C : ?

'Ctrl+X' operation is used to perform 'cut' task, similarly 'Ctrl+C' is used to 'copy'.

=> Ans - (D)

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Question 2

Select the related word/letters/number from the given alternatives.

DI : M :: CR : ?

- A Y
- B Q
- C P
- D U

Answer: D

Explanation:

Expression = DI : M :: CR : ?

The pattern followed is :

(4) (9) (13)
D I → M

(3) (18) (21)
C R → U

Thus, CR : U

=> Ans - (D)

Question 3

Select the related word/letters/number from the given alternatives.

TU : MN :: JK : ?

- A CD

- B RS
- C TM
- D KL

Answer: A

Explanation:

Expression = TU : MN :: JK : ?

The pattern followed is :



Thus, JK : CD

=> Ans - (A)

Question 4

Select the related word/letters/number from the given alternatives.

36 : 25 :: 100 : ?

- A 81
- B 30
- C 35
- D 40

Answer: A

Explanation:

Expression = 36 : 25 :: 100 : ?

The pattern followed is = $x^2 : (x - 1)^2$

Eg :- $6^2 : (6 - 1)^2 = 36 : 25$

Similarly, $10^2 : (10 - 1)^2 = 100 : 81$

=> Ans - (a)

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Question 5

Find out the odd word/letters/number/number pair from the given alternatives.

- A Herb
- B Shrub
- C Tree
- D Root

Answer: D

Explanation:

Herb, shrub and trees are all types of plants, hence root is the odd one out.

=> Ans - (D)

Question 6

Find out the odd word/letters/number/number pair from the given alternatives.

- A MS
- B RX
- C BI
- D JP

Answer: C

Explanation:

(A) : M (+6 letters) = S

(B) : R (+6 letters) = X

(C) : B (+7 letters) = I

(D) : J (+6 letters) = P

=> Ans - (C)

Question 7

Find out the odd word/letters/number/number pair from the given alternatives.

- A 82
- B 75
- C 64
- D 31

Answer: C

Explanation:

Among the given numbers, only $64 = 8^2$ is a perfect square, hence it is the odd one out.

=> Ans - (C)

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Question 8

Find out the odd word/letters/number/number pair from the given alternatives.

- A 512
- B 100
- C 125
- D 216

Answer: B

Explanation:

$512 = (8)^3$

$100 = (10)^2$

$125 = (5)^3$

$$216 = (6)^3$$

=> Ans - (B)

Question 9

A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.
Cell, Tissue, Organ, ?

- A Respiratory system
- B Organ system
- C Digestive system
- D Nervous system

Answer: B

Explanation:

Number of cells make a tissue, similarly number of organs make an organ system.

=> Ans - (B)

Question 10

A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.
ZA, TG, NM, ?

- A HS
- B SH
- C GT
- D TG

Answer: A

Explanation:

Expression : ZA, TG, NM, ?

The pattern followed in each letter of the terms is :

1st letter : Z (-6 letters) = T (-6 letters) = N (-6 letters) = H

2nd letter : A (+6 letters) = G (+6 letters) = M (+6 letters) = S

Thus, missing term = **HS**

=> Ans - (A)

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Question 11

A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.
NM, PK, SI, ?

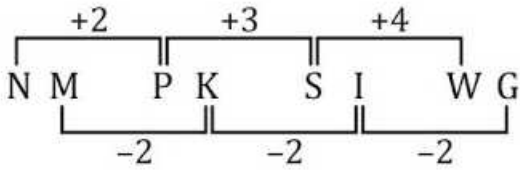
- A VE
- B WF
- C VG
- D WG

Answer: D

Explanation:

Expression : NM, PK, SI, ?

The pattern followed is :



Thus, missing term = WG

=> Ans - (D)

Question 12

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

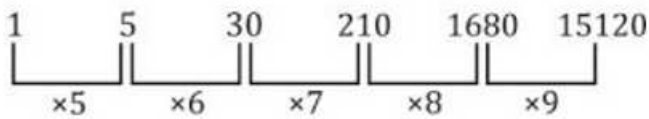
1, 5, 30, 210, 1680, ?

- A 15120
- B 13440
- C 11760
- D 8400

Answer: A

Explanation:

Consecutive integers are multiplied.



Thus, missing number = 15120

=> Ans - (A)

Question 13

In the following question, two statements are given each followed by two conclusions I and II. You have to consider the statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follows from the given statements.

Statements:

(I) $1 < 2$

(II) $2 < 3$

Conclusion:

(I) $1 < 3$

(II) $2 < 3$

- A Conclusion I follows
- B Conclusion II follows
- C Neither I nor II follows
- D Both I and II follows

Answer: D

Explanation:

The given statements indicate that : $1 < 2 < 3$

Conclusion : (I) $1 < 3$: true

(II) $2 < 3$: true

Thus, Both I and II follows.

=> Ans - (D)

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Question 14

The sum of the ages of Rohit and Ankit is 78. Rohit's age is twice the age of Ankit. What is the age (in years) of Rohit?

A 26

B 52

C 54

D 48

Answer: B

Explanation:

Let Ankit's age = x years

=> Rohit's age = $2x$ years

According to ques, => $x + 2x = 3x = 78$

=> $x = \frac{78}{3} = 26$

∴ Rohit's age = $2 \times 26 = 52$ years

=> Ans - (B)

Question 15

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

- i. Translucent
- ii. Transparent
- iii. Transport
- iv. Transistor

A iv, i, ii, iii

B iv, i, iii, ii

C i, iii, ii, iv

D i, ii, iii, iv

Answer: A

Explanation:

As per the order of dictionary :

= Transistor -> Translucent -> Transparent -> Transport

≡ iv, i, ii, iii

=> Ans - (A)

Question 16

In a certain code language, "INSTANT" is written as "IOUWESZ". How is "FORGET" written in that code language?

- A FPOGXI
- B FOSIGX
- C FPSKHW
- D FPTJIY

Answer: D

Explanation:

"INSTANT" is written as "IOUWESZ"

The pattern followed is :

I	N	S	T	A	N	T
↓	↓+1	↓+2	↓+3	↓+4	↓+5	↓+6
I	O	U	W	E	S	Z

Similarly, for FORGET :

F	O	R	G	E	T
↓	↓+1	↓+2	↓+3	↓+4	↓+5
F	P	T	J	I	Y

=> Ans - (D)

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Question 17

In the following Question, select the missing number from the series.

?	198	120
9	11	12
4	18	10

- A 32
- B 30
- C 28
- D 36

Answer: D

Explanation:

The first number in each column is obtained by multiplying the other two.

Eg :- $11 \times 18 = 198$ and $12 \times 10 = 120$

Similarly, $9 \times 4 = 36$

=> Ans - (D)

Question 18

If "A" means "plus", "B" means "divide", "C" means "multiply" and "D" means "minus", then $187 B 17 C 4 A 7 D 17 = ?$

- A 30

- B 44
- C 33
- D 34

Answer: D

Explanation:

Expression : $187 \div 17 \times 4 + 7 - 17 = ?$

$$\equiv 187 \div 17 \times 4 + 7 - 17$$

$$= (11 \times 4) - 10$$

$$= 44 - 10 = 34$$

=> Ans - (D)

Question 19

Which set of letters when sequentially placed at the gaps in the given letter series shall complete it?

l_n_o_m_lm_o

- A mnoln
- B mlnmn
- C monln
- D mnmno

Answer: C

Explanation:

The pattern followed is that in groups of 4, the term 'lmno' and its reverse are alternatively repeated.

= lmno onml lmno

=> Ans - (C)

SSC CHSL Study Material

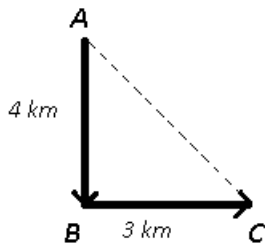
Question 20

A boy travels 4 km towards south and then takes a left turn and travels another 3 km in that direction. How far and in which direction is he now from his original position?

- A 6 km, south
- B 5 km, south-east
- C 4 km, north
- D 5 km, north-west

Answer: B

Explanation:



Let the boy starts from point A and travels 4 km towards south to reach B and then takes a left turn and travels another 3 km eastwards to finally reach point C.

$$\text{Thus, } (AC)^2 = (AB)^2 + (BC)^2$$

$$\Rightarrow (AC)^2 = (4)^2 + (3)^2$$

$$\Rightarrow (AC)^2 = 16 + 9 = 25$$

$$\Rightarrow AC = \sqrt{25} = 5 \text{ km}$$

∴ He is 5 km in the south-east direction from his original position.

⇒ Ans - (B)

Question 21

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-1 are numbered from 0 to 4 and that of Matrix-II are numbered from 5 to 9. A letter from these matrices can be presented first by its row and next by its column, for example, 'r' can be represented by 32, 42 etc. and 'M' can be represented by 88, 68 etc. Similarly, you have to identify the set for the word 'TEST'.

Matrix - I

	0	1	2	3	4
0	P	S	H	H	E
1	D	T	S	L	I
2	E	G	T	S	E
3	E	L	F	T	S
4	L	G	F	S	E

Matrix - II

	5	6	7	8	9
5	I	R	B	T	O
6	R	I	T	M	S
7	R	T	B	I	O
8	T	S	B	M	I
9	S	T	B	M	O

- A 96, 20, 34, 77
- B 58, 30, 69, 79
- C 76, 44, 23, 11
- D 85, 04, 88, 33

Answer: C

Explanation:

- (A) : 96, 20, 34, 77 = TESB
- (B) : 58, 30, 69, 79 = TESO
- (C) : 76, 44, 23, 11 = **TEST**
- (D) : 85, 04, 88, 33 = TEMT

⇒ Ans - (C)

Question 22

Kishan is the son-in-law of Rajesh's father-in-law. Rajesh's wife has a younger sister. How is Rajesh related to Kishan?

- A Brother-in-law
- B Brother

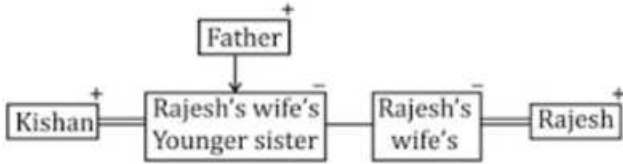
- C Father
- D Cousin

Answer: A

Explanation:

Kishan is the son-in-law of Rajesh's father-in-law. Rajesh's wife has a younger sister.

Relation is :



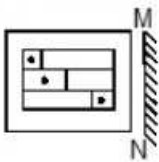
Thus, Rajesh is Kishan's brother-in-law.

=> Ans - (A)

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Question 23

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



- A
- B
- C
- D

Answer: D

Explanation:

A vertical mirror is placed, so the object on the left will appear right in reverse position and vice-versa.

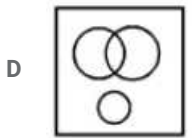
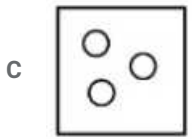
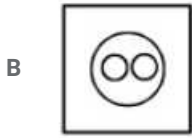
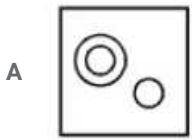
Of the three sections of the rectangle, in the first two sections, the dot is in the left side of the boxes, so in the mirror they will appear at the right sides, and similarly in the last section, the dot will appear in the left side of the box, hence fourth option is the correct mirror image.

=> Ans - (D)

Question 24

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

Mammals, Dogs, Humans



Answer: B

Explanation:

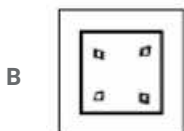
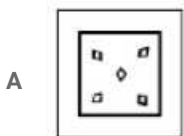
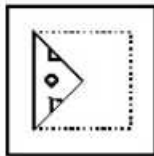
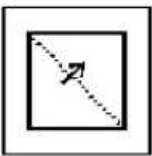
Both dogs and humans are mammals, but are completely different from each other, hence the venn diagram that best describes above relation is :

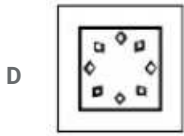
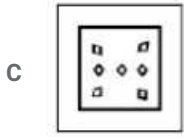


=> Ans - (B)

Question 25

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





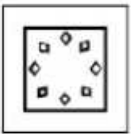
Answer: D

Explanation:

When the paper is unfolded, the pattern of cutting will be similar in the four parts of the paper.

When the paper is unfolded first, two rhombus will appear one each towards bottom left and bottom.

When the paper is unfolded again, it will appear as shown below



Hence, the correct answer is Option D

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General Awareness

Instructions

For the following questions answer them individually

Question 26

Syntax Errors are determined by

- A Interpreter
- B ALU
- C Logic Unit
- D Control Unit

Answer: D

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Question 27

Arithmometer was invented by

- A Evangelista Torricelli
- B Charles Xavier Thomas
- C Edward Teller
- D Gustav Tauschek

Answer: B

Question 28

Which of the following is induced by Oncogene?

- A Polio
- B Cancer
- C Diarrhoea
- D Dengue

Answer: B

Question 29

Azadirachata indica is the scientific name of

- A Neem
- B Teak
- C Silver Oak
- D Tulsi

Answer: A

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Question 30

Octopus belongs to the phylum

- A Mollusca
- B Cnidaria
- C Echinodermata
- D Chordata

Answer: A

Question 31

What is the full form of PVC?

- A Phosphonil vinyl Carbonate
- B Polyvinyl S Carbonate
- C Polyvinyl Carbonate
- D Polyvinyl Chloride

Answer: D

Question 32

Aromatic hydrocarbons contain at least how many benzene rings in their molecules?

- A four
- B three
- C two
- D one

Answer: D

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Question 33

Ranthambhore Fort is in

- A Maharashtra
- B Orissa
- C Rajasthan
- D Sikkim

Answer: C

Question 34

Dogri is primarily spoken in which State?

- A Assam
- B West Bengal
- C Meghalaya
- D Jammu & Kashmir

Answer: D

Question 35

A beedi making workshop can hire 5 women by paying them Rs. 300 per day. The 6th woman demands Rs. 350 per day. If this woman is hired then all other women must be paid Rs. 350. The marginal resource (labour) cost of the 6th woman is

- A Rs. 600
- B Rs. 50
- C Rs. 300
- D Rs. 100

Answer: A

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Question 36

Stagflation is defined as

- A low inflation, low growth, low unemployment
- B high inflation, low growth, high unemployment
- C high inflation, high growth, high unemployment
- D low inflation, high growth, low unemployment

Answer: B

Question 37

A living part of the organisms environment is known as

- A Abiotic Factor
- B Habitat
- C Biotic Factor
- D Non-living factor

Answer: C

Question 38

Chromite is an ore/mineral of

- A Zinc
- B Uranium
- C Chromium
- D Titanium

Answer: C

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Question 39

Who played Gandhi in 1982's Oscar Winning Movie of the same name?

- A Ben Kingsley
- B Saeed Jaffrey
- C Marlon Brando
- D Richard Attenborough

Answer: A

Question 40

What percentage of India's population is employed in agriculture?

- A 85%
- B 70%

C 55%

D 40%

Answer: B

Question 41

Which is the closest star to our solar system?

A Alpha Centauri

B Beta Centauri

C Proxima Centauri

D Barnard

Answer: C

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Question 42

East India Company was established in _____.

A 1400

B 1500

C 1600

D 1700

Answer: C

Question 43

Who was the eldest brother among the Pandavas?

A Yudhishtira

B Bhima

C Sahadeva

D Nakula

Answer: A

Question 44

_____ is the 2016 Oscar Winner for Best Actress.

A Brie Larson

B Cate Blanchett

C Jennifer Lawrence

D Charlotte Rampling

Answer: A

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Question 45

If an object is thrown upwards, what will be its velocity, when it reaches its maximum height?

- A 0 m/s
- B 4.9 m/s
- C 14.7 m/s
- D 20 m/s

Answer: A

Question 46

If a force acts upon two objects at rest, and having different masses for the same amount of time, then which will be the same for both the objects?

- A Acceleration
- B Kinetic Energy
- C Velocity
- D Momentum

Answer: D

Question 47

During an emergency all of the following fundamental rights are suspended, except

- A freedom of association
- B freedom of speech and expression
- C personal liberty
- D freedom of assembly without arms

Answer: C

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Question 48

From which of the following are the Fundamental duties adopted?

- A French Constitution
- B Indian Constitution
- C Spanish Constitution
- D USSR Constitution

Answer: D

Question 49

"Sultan Johor Cup" is associated with _____.

- A Hockey
- B Cricket
- C Football
- D Golf

Answer: A

Question 50

Who wrote the book, 'Indian Home Rule'?

- A M K Gandhi
- B Jawaharlal Nehru
- C Subhash Chandra Bose
- D Babasaheb Ambedkar

Answer: A

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Mathematics

Instructions

For the following questions answer them individually

Question 51

Raj sells a machine for Rs 51 lakhs at a loss. Had he sold it for Rs 60 lakh, his gain would have been 8 times the earlier loss. What is the cost price of the machine?

- A Rs 59 lakhs
- B Rs 52 lakhs
- C Rs 66.375 lakhs
- D Rs 45 lakhs

Answer: B

Explanation:

Let cost price of the machine = Rs. x lakhs

When selling price = Rs. 51 lakhs

=> Loss = Rs. $(x - 51)$ lakhs

If selling price = Rs. 60 lakhs

=> Profit = Rs. $(60 - x)$ lakhs

According to ques, Profit = $8 \times$ loss

$$\Rightarrow (60 - x) = 8 \times (x - 51)$$

$$\Rightarrow 60 - x = 8x - 408$$

$$\Rightarrow 8x + x = 408 + 60 = 468$$

$$\Rightarrow x = \frac{468}{9} = \text{Rs. } 52 \text{ lakhs}$$

\Rightarrow Ans - (B)

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Question 52

A does 75% of a work in 50 days. He then calls in B and they together finish the remaining work in 10 days. How long B alone would take to complete the whole work?

- A 200 days
- B 50 days
- C 100 days
- D 125 days

Answer: C

Explanation:

Let total work to be done = 200 units

Work done by A in 50 days = $\frac{75}{100} \times 200 = 150$ units

A's efficiency = $\frac{150}{50} = 3$ units/day

Remaining work = $200 - 150 = 50$ units

Let B's efficiency = x units/day

Now, A and B complete remaining work in 10 days

$$\Rightarrow (3 + x) \times 10 = 50$$

$$\Rightarrow 3 + x = \frac{50}{10} = 5$$

$$\Rightarrow x = 5 - 3 = 2$$

\therefore Time taken by B to complete the whole work alone = $\frac{200}{2} = 100$ days

\Rightarrow Ans - (C)

Question 53

If $2\cos A \sin B = x$, then the value of x is?

- A $\sin(A+B) + \sin(A-B)$
- B $\cos(A+B) + \cos(A-B)$
- C $\sin(A+B) - \sin(A-B)$
- D $\cos(A-B) - \cos(A+B)$

Answer: C

Explanation:

Expression : $2\cos A \sin B = x$

$$= \cos A \sin B + \cos A \sin B$$

Adding and subtracting ($\sin A \cos B$)

$$= (\sin A \cos B + \cos A \sin B) + (\cos A \sin B - \sin A \cos B)$$

$$= (\sin A \cos B + \cos A \sin B) - (\sin A \cos B - \cos A \sin B)$$

$$= \sin(A + B) - \sin(A - B)$$

=> Ans - (C)

Question 54

Factors of $48x^3 - 8x^2 - 93x - 45$ are

A $(4x + 3)(4x - 3)(3x - 5)$

B $(4x - 3)(4x - 3)(3x - 5)$

C $(4x + 3)(4x + 3)(3x - 5)$

D $(4x - 3)(4x + 3)(3x + 5)$

Answer: C

Explanation:

(A) : $(4x + 3)(4x - 3)(3x - 5)$

$$= (16x^2 - 12x + 12x - 9)(3x - 5)$$

$$= (16x^2 - 9)(3x - 5)$$

$$= 48x^3 - 80x^2 - 27x + 45$$

(B) : $(4x - 3)(4x - 3)(3x - 5)$

$$= (16x^2 - 24x + 9)(3x - 5)$$

$$= 48x^3 - 80x^2 - 72x^2 + 120x + 27x - 45$$

$$= 48x^3 - 152x^2 + 147x - 45$$

(C) : $(4x + 3)(4x + 3)(3x - 5)$

$$= (16x^2 + 24x + 9)(3x - 5)$$

$$= 48x^3 - 80x^2 + 72x^2 - 120x + 27x - 45$$

$$= 48x^3 - 8x^2 - 93x - 45$$

=> Ans - (C)

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Question 55

x and y are two numbers such that their mean proportion is 8 and third proportion is 512. What is the value of x and y?

A 2 and 16

B 2 and 32

C 4 and 32

D 4 and 16

Answer: B

Explanation:

Three numbers a, b, c are in proportion iff $b^2 = ac$ where b is the mean proportion and c is the third proportion

Mean proportion of two numbers x and $y = 8$

$$\Rightarrow xy = (8)^2 = 64 \text{ -----(i)}$$

Third proportion = 512

$$\Rightarrow y^2 = x \times 512 \text{ -----(ii)}$$

Substituting value of x from equation(i) in equation(ii), we get :

$$\Rightarrow y^2 = \frac{64}{y} \times 512$$

$$\Rightarrow y^3 = (2)^6 \times (2)^9 = (2)^{15}$$

$$\Rightarrow y = (2)^{\frac{15}{3}} = 2^5 = 32$$

$$\text{Substituting it in equation(i), } \Rightarrow x = \frac{64}{32} = 2$$

\Rightarrow Ans - (B)

Question 56

The difference between simple and compound interests compounded annually on a certain sum of money for 2 years at 12% per annum is Rs 72. What is the value of given sum (in Rs)?

A 10000

B 20000

C 5000

D 15000

Answer: C

Explanation:

Let the given sum = Rs. $100x$

Rate of interest = 12% and time period = 2 years

$$\text{Compound interest} = P \left[\left(1 + \frac{R}{100} \right)^T - 1 \right]$$

$$= 100x \left[\left(1 + \frac{12}{100} \right)^2 - 1 \right]$$

$$= 100x \left[\left(\frac{112}{100} \right)^2 - 1 \right] = 100x \left(\frac{12544 - 10000}{10000} \right)$$

$$= \frac{2544x}{100}$$

$$\text{Simple interest} = \frac{P \times R \times T}{100}$$

$$= \frac{100x \times 12 \times 2}{100} = 24x$$

$$\Rightarrow \text{Difference between simple and compound interests} = \frac{2544x}{100} - 24x = 72$$

$$\Rightarrow \frac{2544x - 2400x}{100} = 72$$

$$\Rightarrow 144x = 72 \times 100$$

$$\Rightarrow x = \frac{72 \times 100}{144} = \frac{100}{2} = 50$$

\therefore Value of given sum = $100 \times 50 = \text{Rs.} 5000$

Question 57

The average weight of Shivshankar, Gopesh and Reena is 97 kg. If the average weight of Shivshankar and Gopesh is 93 kg and that of Gopesh and Reena is 82 kg, then the weight of Gopesh is

- A 72
- B 56
- C 59
- D 63

Answer: C

Explanation:

Let respective weights of Shivshankar, Gopesh and Reena is s, g, r kg

$$\text{Average weight of the three} = \frac{s+g+r}{3} = 97$$

$$\Rightarrow s + g + r = 97 \times 3 = 291 \text{ kg} \text{-----(i)}$$

$$\text{Similarly, Total weight of Shivshankar and Gopesh} = s + g = 93 \times 2 = 186 \text{ kg} \text{-----(ii)}$$

$$\text{Total weight of Gopesh and Reena} = g + r = 82 \times 2 = 164 \text{ kg} \text{-----(iii)}$$

$$\text{Adding equations(ii) and (iii),} \Rightarrow s + 2g + r = 186 + 164 = 350 \text{-----(iv)}$$

Subtracting equation (i) from (iv), we get :

$$\Rightarrow g = 350 - 291 = 59 \text{ kg}$$

\Rightarrow Ans - (C)

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Question 58

If $\operatorname{cosec}^4 A - \operatorname{cosec}^2 A = x$, then value of x is?

- A $\tan^4 A + \tan^2 A$
- B $\cot^4 A + \cot^2 A$
- C $\cot^4 A - \cot^2 A$
- D $\tan^4 A - \tan^2 A$

Answer: B

Explanation:

$$\text{Expression : } \operatorname{cosec}^4 A - \operatorname{cosec}^2 A = x$$

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

$$= \operatorname{cosec}^2 A \left(\frac{1}{\sin^2 A} - 1 \right)$$

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

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

$$\therefore \operatorname{cosec}^2 A - \cot^2 A = 1$$

$$= (\cot^2 A + 1) \cot^2 A$$

$$= \cot^4 A + \cot^2 A$$

\Rightarrow Ans - (B)

Question 59

What is the measure of an interior angle of a regular Octagon?

- A 135°
- B 120°
- C 140°
- D 144°

Answer: A

Explanation:

Sum of all interior angles of a polygon having n sides = $(n - 2) \times 180^\circ$

Number of sides of octagon, $n = 8$

=> Sum of interior angles = $(8 - 2) \times 180^\circ$

= $6 \times 180 = 1080^\circ$

∴ Measure of each interior angle = $\frac{1080}{8} = 135^\circ$

=> Ans - (D)

Question 60

If $4(2x - 4) - 2 > 3x - 1 \geq 4x - 7$, then x can take which of the following values?

- A 7
- B 6
- C 2
- D 0

Answer: B

Explanation:

Expression 1 : $4(2x - 4) - 2 > 3x - 1$

=> $8x - 16 - 2 > 3x - 1$

=> $8x - 3x > -1 + 18$

=> $x > \frac{17}{5}$ -----(i)

Expression 2 : $3x - 1 \geq 4x - 7$

=> $4x - 3x \leq -1 + 7$

=> $x \leq 6$ -----(ii)

Combining inequalities (i) and (ii), we get : $\frac{17}{5} < x \leq 6$

The only value that x can take among the options = 6

=> Ans - (B)

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Question 61

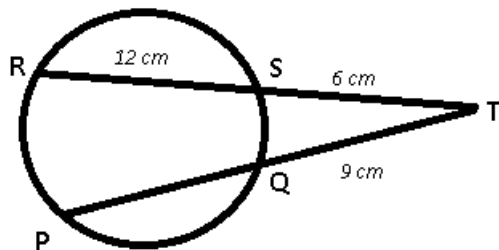
Chords PQ and RS of a circle extended externally intersect at point T. Length of the segment PT, if lengths of QT, RT and ST are 9 cm, 18 cm and 6 cm respectively, is

- A 18 cm

- B 16 cm
- C 9 cm
- D 12 cm

Answer: D

Explanation:



Given : $QT = 9$ cm , $RT = 18$ cm and $ST = 6$ cm

To find : $PT = ?$

Solution : Using properties of secant in circle

$$\Rightarrow (PT) \times (QT) = (RT) \times (ST)$$

$$\Rightarrow (PT) \times 9 = 18 \times 6$$

$$\Rightarrow PT = \frac{108}{9} = 12 \text{ cm}$$

\Rightarrow Ans - (D)

Question 62

If $a + b = 11$ and $a^2 + b^2 = 61$, then value of ab is

- A 12
- B 96
- C 24
- D 30

Answer: D

Explanation:

Given : $(a + b) = 11$ and $a^2 + b^2 = 61$

Using $(a + b)^2 = a^2 + b^2 + 2ab$

$$\Rightarrow (11)^2 = 61 + (2 \times ab)$$

$$\Rightarrow 2ab = 121 - 61 = 60$$

$$\Rightarrow ab = \frac{60}{2} = 30$$

\Rightarrow Ans - (D)

Question 63

What is the value of \tan^{-240}° ?

- A $-\sqrt{3}$
- B $\frac{1}{\sqrt{3}}$

C $-\frac{1}{\sqrt{3}}$

D $\sqrt{3}$

Answer: A

Explanation:

Expression : $\tan(-240^\circ)$

$$\because \tan(-x) = -\tan(x)$$

$$\Rightarrow \tan(-240^\circ) = -\tan(240^\circ)$$

$$= -\tan(180 + 60) = -\tan(60^\circ)$$

$$= -\sqrt{3}$$

\Rightarrow Ans - (A)

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Question 64

Rakesh goes on a trip on his motor-cycle and rides for 368 kms. If he rides for 5 hours at a speed of 49 km/hr, at what speed he travels for the remaining 3 hours of the journey?

A 58 km/hr

B 41 km/hr

C 54 km/hr

D 46 km/hr

Answer: B

Explanation:

Total distance covered = 368 km

He rides for 5 hours at a speed of 49 km/hr

$$\Rightarrow \text{Distance covered} = 5 \times 49 = 245 \text{ km}$$

$$\text{Distance left} = 368 - 245 = 123 \text{ km}$$

$$\therefore \text{Speed he should travel for the remaining 3 hours of the journey} = \frac{123}{3} = 41 \text{ km/hr}$$

\Rightarrow Ans - (B)

Question 65

What is the total surface area (in sq cm) of a hollow cylinder open at both ends, if its length is 22 cm, external radius is 7 cm and thickness is 1 cm? (Take $\pi = 22/7$)

A 1879.43

B 3758.86

C 939.715

D 2819.145

Answer: A

Explanation:

Let the external radius, the internal radius and the height of the hollow cylinder be R , r and h respectively.

$\Rightarrow R = 7 \text{ cm}, h = 22 \text{ cm}$ and $r = 7 - 1 = 6 \text{ cm}$

Total surface area of hollow cylinder = $(2\pi Rh) + (2\pi rh) + 2\pi(R^2 - r^2)$

$$= (2 \times \frac{22}{7}) [(7 \times 22) + (6 \times 22) + (7^2 - 6^2)]$$

$$= (\frac{44}{7}) \times (154 + 132 + 13)$$

$$= \frac{44}{7} \times 299 = 1879.428 \approx 1879.43 \text{ cm}^2$$

\Rightarrow Ans - (A)

Question 66

What is the distance between the points (4,7) and (-1,-5)?

A 10 units

B 13 units

C 5 units

D 11 units

Answer: B

Explanation:

Distance between two points (x_1, y_1) and $(x_2, y_2) = \sqrt{(y_2 - y_1)^2 + (x_2 - x_1)^2}$

Now, distance between points (-1,-5) and (4,7)

$$= \sqrt{(7 + 5)^2 + (4 + 1)^2} = \sqrt{(12)^2 + (5)^2}$$

$$= \sqrt{144 + 25} = \sqrt{169}$$

= 13 units

\Rightarrow Ans - (B)

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Question 67

At 22% discount, the selling price of a Refrigerator is Rs 26000, what is the selling price if the discount is 40%?

A Rs 12000

B Rs 14640

C Rs 21840

D Rs 20000

Answer: D

Explanation:

Let Marked Price of the Refrigerator = Rs. $100x$

If discount is 22%, Selling price = $\frac{100-22}{100} \times 100x = 78x$

According to ques, $\Rightarrow 78x = 26000$

$$\Rightarrow x = \frac{26000}{78} = \frac{1000}{3}$$

If discount is 40%, selling price = $\frac{100-40}{100} \times 100x = 60x$

$$= 60 \times \frac{1000}{3} = \text{Rs. } 20,000$$

=> Ans - (D)

Question 68

26 is 0.4% of which number?

- A 6500
- B 650
- C 13000
- D 16250

Answer: A

Explanation:

Let the number be x

According to ques, 0.4% of $x = 26$

$$\Rightarrow \frac{0.4}{100} \times x = 26$$

$$\Rightarrow \frac{1}{250} \times x = 26$$

$$\Rightarrow x = 26 \times 250 = 6500$$

=> Ans - (A)

Question 69

Divide 20 into two parts such that the sum of the square of the parts is 232. What is the value of the two parts?

- A 6, 14
- B 8, 12
- C 4, 16
- D 10, 10

Answer: A

Explanation:

Let the first part = x and second part = $(20 - x)$

According to ques, $\Rightarrow (x)^2 + (20 - x)^2 = 232$

$$\Rightarrow x^2 + (x^2 + 400 - 40x) = 232$$

$$\Rightarrow 2x^2 - 40x + 400 - 232 = 0$$

$$\Rightarrow x^2 - 20x + 84 = 0$$

$$\Rightarrow x^2 - 6x - 14x + 84 = 0$$

$$\Rightarrow x(x - 6) - 14(x - 6) = 0$$

$$\Rightarrow (x - 6)(x - 14) = 0$$

$$\Rightarrow x = 6, 14$$

=> Ans - (A)

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Question 70

What will be the equation of the perpendicular bisector of segment joining the points (5,-3) and (0,2)?

A $x + y = 2$

B $x - y = -3$

C $x + y = -2$

D $x - y = 3$

Answer: D

Explanation:

Let line l perpendicularly bisects line joining $A(5,-3)$ and $B(0,2)$ at C , thus C is the mid point of AB .

$$\Rightarrow \text{Coordinates of } C = \left(\frac{5+0}{2}, \frac{-3+2}{2} \right)$$

$$= \left(\frac{5}{2}, \frac{-1}{2} \right)$$

$$\text{Now, slope of } AB = \frac{y_2 - y_1}{x_2 - x_1} = \frac{2 - (-3)}{0 - 5}$$

$$= \frac{5}{-5} = -1$$

Let slope of line $l = m$

Product of slopes of two perpendicular lines = -1

$$\Rightarrow m \times -1 = -1$$

$$\Rightarrow m = 1$$

Equation of a line passing through point (x_1, y_1) and having slope m is $(y - y_1) = m(x - x_1)$

\therefore Equation of line l

$$\Rightarrow (y + \frac{1}{2}) = 1(x - \frac{5}{2})$$

$$\Rightarrow x - y = \frac{5}{2} + \frac{1}{2} = \frac{6}{2}$$

$$\Rightarrow x - y = 3$$

\Rightarrow Ans - (D)

Question 71

$4 \times (-0.1(5.5 + 8.5))$ of $0.5 = ?$

A -2.8

B -1.68

C -1.28

D -0.84

Answer: A

Explanation:

Expression : $4 \times (-0.1(5.5 + 8.5))$ of $0.5 = ?$

$$= 4 \times 0.5[-0.1(14)]$$

$$= 2 \times (-1.4)$$

$$= -2.8$$

\Rightarrow Ans - (A)

Question 72

Refer the below data table and answer the following Question.

	Weight (kg)	Height (m)
Archita	67	1.63
Arpana	67	1.51
Arpita	57	1.56
Arundhati	73	1.59

Who has the least weight to height ratio?

- A Archita
- B Arpana
- C Arpita
- D Arundhati

Answer: C

Explanation:

Ratio of weight to height

$$\text{Archita : } \frac{67}{1.63} = 41.1$$

$$\text{Arpana : } \frac{67}{1.51} = 44.3$$

$$\text{Arpita : } \frac{57}{1.56} = 36.5 \quad \text{[LEAST]}$$

$$\text{Arundhati : } \frac{73}{1.59} = 45.9$$

=> Ans - (C)

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Question 73

Refer the below data table and answer the following Question.

Year	Company's % Profit
2011	5
2012	10
2013	15
2014	10
2015	15

What was the revenue of the company if its expenditure was Rs 550 crore in the year when its % profit was the least?

- A 605
- B 577.5
- C 632.5
- D 550

Answer: B

Explanation:

Profit % was least in 2011 = 5%

Let revenue = Rs. x crore and expenditure = Rs. 550 crore

$$\Rightarrow \text{Profit \%} = \frac{x-550}{550} \times 100 = 5$$

$$\Rightarrow \frac{x-550}{550} = \frac{5}{100} = \frac{1}{20}$$

$$\Rightarrow x - 550 = \frac{550}{20} = 27.5$$

$$\Rightarrow x = 550 + 27.5 = 577.5 \text{ crore}$$

\Rightarrow Ans - (B)

Question 74

The following table shows the number of children in each house of a society.

Number of Children	Number of Houses
0	7
1	11
2	15
3	5

What is the average number of children per house?

A 1.97

B 1.72

C 1.47

D 1.22

Answer: C

Explanation:

Total number of houses = $7 + 11 + 15 + 5 = 38$

Total children = $(0 \times 7) + (1 \times 11) + (2 \times 15) + (3 \times 5)$

= $11 + 30 + 15 = 56$

\therefore Average number of children per house = $\frac{56}{38} = 1.47$

\Rightarrow Ans - (C)

Question 75

Refer the below data table and answer the following Question.

Partners	Present % Share
Anand	10
Basu	15
Chinmay	10
Dhiraj	15
Ejaz	50

If the company has issued six lakh shares between its five partners and if Chinmay offers to sell 15,000 of his shares to Dhiraj, then Dhiraj will have how many shares?

A 120000 shares

B 90000 shares

C 105000 shares

D 75000 shares

Answer: C

Explanation:

Total shares = 6,00,000

Original shares with Dhiraj = $\frac{15}{100} \times 600000 = 90,000$

If Chinmay offers to sell 15,000 of his shares to Dhiraj,

=> Shares with Dhiraj = 90,000 + 15,000 = 1,05,000

=> Ans - (C)

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English

Instructions

For the following questions answer them individually

Question 76

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.

_____ around the bush.

- A To hit
- B To beat
- C To circle
- D To hide

Answer: B

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Question 77

Select the antonym of adulterate

- A attenuated
- B purify
- C vitiated
- D dilute

Answer: B

Question 78

Rearrange the parts of the sentence in correct order.

In punishment for the uprising,

P-called tributes, to participate

Q-each of the twelve districts must provide

R-one girl and one boy,

- A PRQ
- B PQR

C RQP

D QRP

Answer: D

Question 79

Select the antonym of conjoined

A sever

B adjoin

C meld

D affix

Answer: A

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Question 80

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'.

It was obviously for everyone (A)/that grandfather was (B)/hiding something from all of us.(C)/ No error(D)

A A

B B

C C

D D

Answer: A

Question 81

In the following question, out of the four alternatives, select the alternative which is the best substitute of the phrase.
an event or a group of events occurring as part of a sequence

A stanza

B episode

C series

D lesson

Answer: B

Question 82

Select the synonym of consolidate

A centralize

B variate

- C declare
- D announce

Answer: A

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Question 83

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

A dime a dozen

- A Strength is in numbers
- B People who say bad things have no value
- C Very common and of no particular value
- D You save more if you buy in large numbers

Answer: C

Question 84

Improve the bracketed part of the sentence.

The public vent their anger on social media to protest (toward) police brutality.

- A for
- B against
- C regards
- D no improvement

Answer: B

Question 85

Select the word with the correct spelling.

- A missible
- B saosages
- C emullator
- D abdicate

Answer: D

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Question 86

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'.

Recently I visited Kerala(A)/and found the sceneries(B)/to be breathtaking.(C)/No error(D)

- A A
- B B
- C C
- D D

Answer: B

Question 87

Rearrange the parts of the sentence in correct order.

The twenty-four tributes

P-that could hold anything from a

Q-will be imprisoned in a vast outdoor arena

R-burning desert to a frozen wastelan

- A PQR
- B PRQ
- C QPR
- D RQP

Answer: C

Question 88

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.

Have the car stolen!

- A Steal the car.
- B You should have the stolen car.
- C Get someone to steal the car.
- D They have stolen the car.

Answer: C

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Question 89

Improve the bracketed part of the sentence.

Look at this video clip in which (I, my friend and you) are enjoying a boat ride.

- A you, my friend and I
- B I, you and my friend
- C my friend, you and I
- D no improvement

Answer: A

Question 90

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

The teacher said to the students, "Don't make noise."

- A The teacher asked the students not to make noise.
- B The teacher scolded the students, they should not make noise.
- C The teacher warned the students not to make noise.
- D The teacher told the students that don't make noise.

Answer: C

Question 91

Select the word with the correct spelling.

- A eraseable
- B probabble
- C secretes
- D esteemeed

Answer: C

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Question 92

Select the synonym of inscription

- A scrubbed
- B rivet
- C jaded
- D engrave

Answer: D

Question 93

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.

Every evening a _____ of wolves descends into the valley to hunt.

- A pack
- B gang
- C company
- D herd

Answer: A

Question 94

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

A drop in the bucket

- A So much silence that even a drop can be heard
- B A very small amount compared with what is needed
- C The final act before the task is done
- D A small favour is worth a lot to a person in trouble

Answer: B

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Question 95

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

Represent something as being less important than it really is.

- A discriminant
- B stride
- C underplay
- D imperious

Answer: C

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.

Instead of finding the root cause of ___(1)___ of Indians, the British government took to more ___(2)___ measures. Under the Defense of India Act, it gave more power to the police to arrest persons to stop processions with ___(3)___ movements and actions. The Act brought in the Central Legislative Assembly was defeated by one vote. Even then it was to be passed in the form of an ordinance in the "interest of the public." Bhagat Singh who was in hiding all this while, volunteered to throw a bomb in the Central Legislative Assembly where the meeting to pass the ordinance was being held. It was a carefully laid out ___(4)___, not to cause death or injury but to ___(5)___ the attention of the government, that the modes of its suppression could no more be tolerated. It was decided that Bhagat Singh and Batukeshwar Dutt would court arrest after throwing the bomb.

Question 96

(1)

- A discontent
- B problem
- C sadness
- D protest

Answer: A

Question 97

(2)

- A drastic
- B angrier
- C repressive
- D damaging

Answer: C

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Question 98

(3)

- A out of the ordinary
- B suspicious
- C cautious
- D skeptical

Answer: B

Question 99

(4)

- A scam
- B trick
- C trap
- D plot

Answer: D

Question 100

(5)

- A draw
- B bring
- C get
- D notice

Answer: A

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