

SSC CHSL 10 Jan 2017 Morning Shift

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)

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)

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)

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)

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

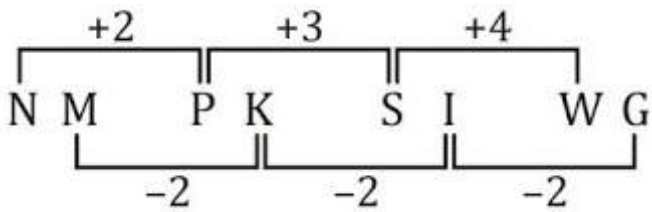
D WG

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

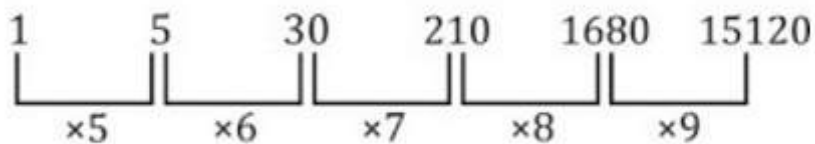
C 11760

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

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)

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 $187 \text{ B } 17 \text{ C } 4 \text{ A } 7 \text{ D } 17 = ?$

A 30

B 44

C 33

D 34

Answer: D

Explanation:

Expression : $187 \text{ B } 17 \text{ C } 4 \text{ A } 7 \text{ D } 17 = ?$

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

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

$$= 44 - 10 = 34$$

=> 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)

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

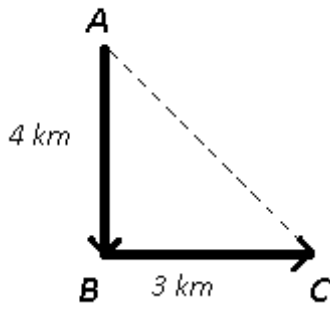
B 5 km, south-east

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 east wards 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

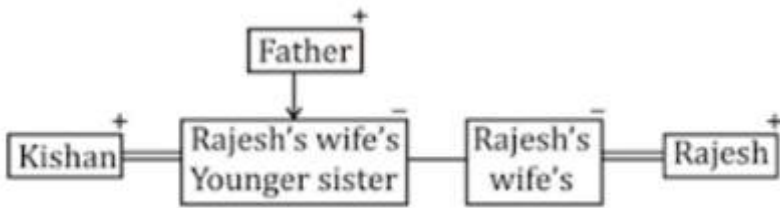
D Cousin

Answer: A

Explanation:

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

Relation is :

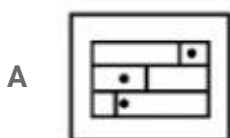
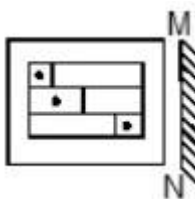


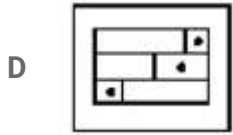
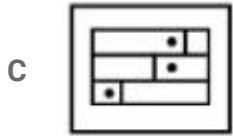
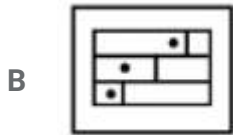
Thus, Rajesh is Kishan's brother-in-law.

=> Ans - (A)

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 ?



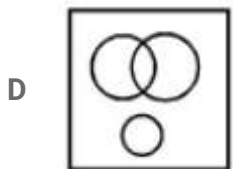
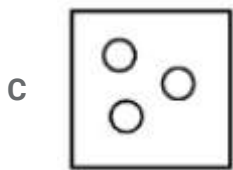
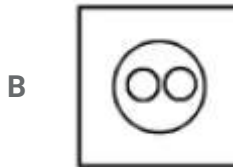
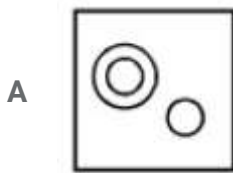


Answer: D

Question 24

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

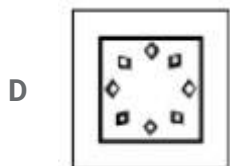
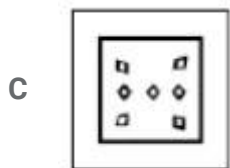
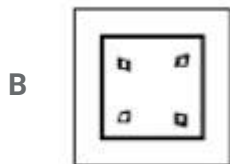
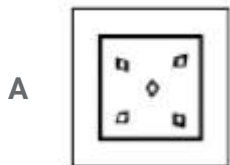
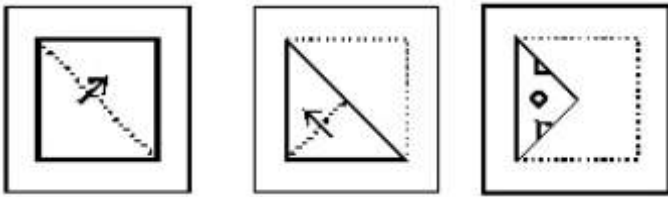
Mammals, Dogs, Humans



Answer: 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: B

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

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

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 _____ benzene like ring in their molecules.

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

Answer: D

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

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

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

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

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 one of the following 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

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

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

$$\Rightarrow \text{Loss} = \text{Rs. } (x - 51) \text{ lakhs}$$

If selling price = Rs. 60 lakhs

$$\Rightarrow \text{Profit} = \text{Rs. } (60 - x) \text{ lakhs}$$

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

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

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

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

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

=> Ans - (B)

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

=> 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)

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)

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:

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

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

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

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

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

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

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

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

=> 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, $n = 8$

$$\Rightarrow \text{Sum of interior angles} = (8 - 2) \times 180^\circ$$

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

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

\Rightarrow 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 : $4(2x - 4) - 2 > 3x - 1$

$$\Rightarrow 8x - 16 - 2 > 3x - 1$$

$$\Rightarrow 8x - 3x > -1 + 18$$

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

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

$$\Rightarrow 4x - 3x \leq -1 + 7$$

$$\Rightarrow x \leq 6 \text{ -----(ii)}$$

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

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

\Rightarrow Ans - (B)

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

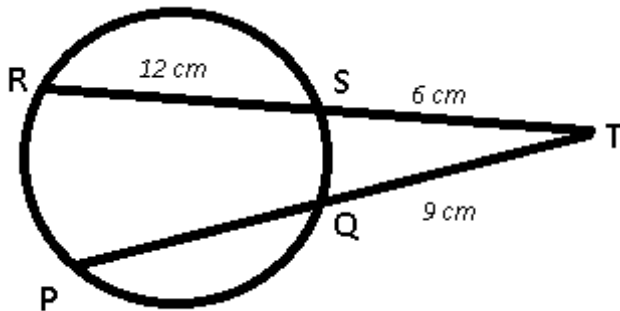
B 16 cm

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°

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

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

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

$$= -\sqrt{3}$$

\Rightarrow Ans - (A)

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

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

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

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

=> 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.

=> $R = 7$ cm, $h = 22$ cm and $r = 7 - 1 = 6$ cm

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

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

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

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

=> 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

=> Ans - (B)

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 oven = $Rs.100x$

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

According to ques, => $78x = 26000$

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

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

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

=> 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 $x = 26$

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

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

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

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

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

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

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

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

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

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

$$\Rightarrow x = 6, 14$$

\Rightarrow Ans - (A)

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

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

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

$$\Rightarrow x - y = 3$$

\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)

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)

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

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

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

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

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

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

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

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

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

SSC CHSL 10 Jan 2017 Afternoon Shift

Reasoning

Instructions

For the following questions answer them individually

Question 1

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

Opposite : Identical :: Lengthy : ?

- A Tedious
- B Longish
- C Elongated
- D Short

Answer: D

Explanation:

Opposite and identical are antonyms, similarly antonym of lengthy is *short*.

=> Ans - (D)

Question 2

Select the related word/letters/number from the given alternatives. GT : IV :: KX : ?

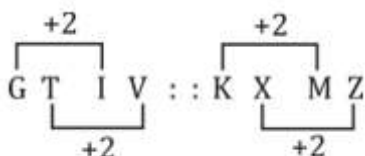
- A FS
- B MZ
- C DQ
- D BO

Answer: B

Explanation:

Expression = GT : IV :: KX : ?

The pattern followed is :



Thus, KX : MZ

=> Ans - (B)

Question 3

Select the related word/letters/number from the given alternatives. BCD : YXW :: FGH :: ?

- A UTS
- B RQP
- C STU
- D TUS

Answer: A

Explanation:

Expression = BCD : YXW :: FGH :: ?

Alphabets at the corresponding position from the reverse end are written.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
↓	↓	↓		
Z	Y	X	W	V	U	T	S	R	Q	P	O	N	M	L	K	J	I	H	G	F	E	D	C	B	A

Similarly, FGH : UTS

=> Ans - (A)

Question 4

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

66 : 36 :: 99 : ?

- A 18
- B 27
- C 81
- D 108

Answer: C

Explanation:

Expression = 66 : 36 :: 99 : ?

The pattern followed is = $x : \left(\frac{x}{11}\right)^2$

Eg :- $66 : \left(\frac{66}{11}\right)^2 = 66 : 36$

Similarly, $\left(\frac{99}{11}\right)^2 = (9)^2 = 81$

=> Ans - (C)

Question 5

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

- A Tiger
- B Jaguar
- C Leopard
- D Fox

Answer: D

Explanation:

Tiger, jaguar and leopard belong to the cat family, hence fox is the odd one out.

=> Ans - (D)

Question 6

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

- A YXW
- B LKJ
- C RQP
- D MNO

Answer: D

Explanation:

Except MNO, other three are consecutive letters from English alphabets in reverse order, hence MNO is the odd one out.

=> Ans - (D)

Question 7

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

7 : 50 :: 9 : ?

- A 37
- B 82
- C 17

D 90

Answer: B

Explanation:

Expression : $7 : 50 :: 9 : ?$

The pattern followed is $= x : x^2 + 1$

Eg :- $7 : 7^2 + 1 = 7 : 50$

Similarly, $9^2 + 1 = 81 + 1 = 82$

=> Ans - (B)

Question 8

Findout the odd word/letters/number/number pair from the given alternatives.

23 : 8 :: 62 : ?

A 8

B 36

C 12

D 40

Answer: B

Explanation:

Expression = $23 : 8 :: 62 : ?$

The pattern followed is $= (2)^3 = 8$

Similarly, $6^2 = 36$

=> 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.

?, Microgram, Milligram, Gram

A Kilogram

B Tonne

C Quintal

D Nanogram

Answer: D

Explanation:

Size in increasing order is given.

= Nanogram -> Microgram -> Milligram -> Gram

=> Ans - (D)

Question 10

A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series. BC, GHI, NOPQ, ?

A BCDEF

B UVWXY

C WXYZA

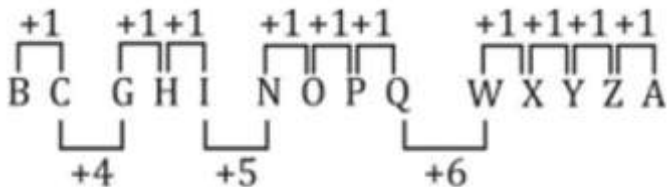
D STUVW

Answer: C

Explanation:

Expression : BC, GHI, NOPQ, ?

The pattern followed is :



Thus, missing term = **WXYZA**

=> Ans - (C)

Question 11

A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series. DE, BG, YJ, ?

A ST

B RQ

C XY

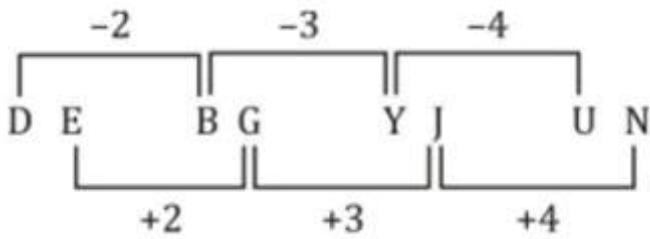
D UN

Answer: D

Explanation:

Expression : DE, BG, YJ, ?

The pattern followed is :



Thus, missing term = **UN**

=> Ans - (D)

Question 12

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.

Statement:

(I) Some crows are jackals.

(II) No fox is a crow.

Conclusions:

(I) Some jackals are foxes.

(II) Some jackals are not foxes

A Conclusion I follows

B Conclusion II follows

C Either I and II follows

D Both I and II follows

Answer: C

Question 13

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

2, 10, 30, 68, ?

A 130

B 135

C 140

D 120

Answer: A

Explanation:

The pattern followed is :

$$1^3 + 1 = 2$$

$$2^3 + 2 = 10$$

$$3^3 + 3 = 30$$

$$4^3 + 4 = 68$$

$$5^3 + 5 = 130$$

=> Ans - (A)

Question 14

The average of the ages of Rajan and his son is 20. If Rajan's present age is three times the age of his son, then what will be the age of Rajan 5 years from now?

A 40 years

B 28 years

C 35 years

D 25 years

Answer: C

Explanation:

Let Rajan's son's present age = x years

=> Rajan's age = $3x$ years

According to ques, average ages = $\frac{(x+3x)}{2} = 20$

$$\Rightarrow 4x = 20 \times 2 = 40$$

$$\Rightarrow x = \frac{40}{4} = 10$$

\therefore Rajan's age 5 years from now = $3(10) + 5 = 35$ years

=> Ans - (C)

Question 15

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

i. Nuzzled

ii. Nozzle

iii. Nonjury

iv. Nocking

A iii, i, ii, iv

B iv, i, ii, iii

C ii, i, iii, iv

D iv, iii, ii, i

Answer: D

Explanation:

As per the order of dictionary :

= Nocking -> Nonjury -> Nozzle -> Nuzzled

≡ iv, iii, ii, i

=> Ans - (D)

Question 16

In a certain code language, "BISLERI" is written as "IREBISL". How is "PANTHER" written in that code language?

A REHPANT

B REPHANT

C REHTNAP

D REHNAPT

Answer: A

Explanation:

"BISLERI" is written as "IREBISL"

The word is divided into two parts of 4 and 3 letters respectively = (BISL) (ERI), now both the parts are swapped and the second part is also reversed. Code = (IRE) (BISL)

Similarly, for PANTHER = (PANT) (HER), second part is reversed and swapped.

Thus, PANTHER : **REHPANT**

=> Ans - (A)

Question 17

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

7	2	49
8	3	512
11	?	1331

A 3

B 2

C 4

D 5

Answer: A

Explanation:

In each row, for the numbers, a , b and c , pattern is : $a^b = c$

Eg :- $7^2 = 49$ and $8^3 = 512$

Similarly, $(11)^x = 1331 = (11)^3$

$\Rightarrow x = 3$

\Rightarrow Ans - (A)

Question 18

If "S" denotes "multiplied by", "V" denotes "subtracted from", "M" denotes "added to" and "L" denotes "divided by", then

$7 \text{ V } 42 \text{ M } 56 \text{ L } 8 \text{ S } 5 = ?$

A 8

B 12

C 20

D 0

Answer: D

Explanation:

Expression : $7 \text{ V } 42 \text{ M } 56 \text{ L } 8 \text{ S } 5 = ?$

$\equiv 7 - 42 + 56 \div 8 \times 5$

$= -35 + (7 \times 5)$

$= -35 + 35 = 0$

=> Ans - (D)

Question 19

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

A KKJLM

B KKJML

C KKMLJ

D KMKLJ

Answer: B

Explanation:

The pattern followed is :

= JK JKL JKLM JKLMN

=> Ans - (B)

Question 20

A travels 12 km towards north and then takes a left turn and covers another 5 km. From there, he turns 180° anticlockwise and travels 10 km further. What is the minimum distance between his initial and final position?

A 8 km

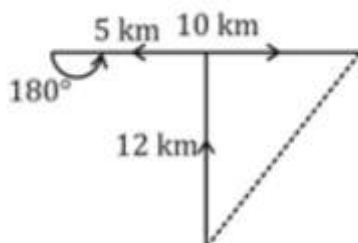
B 13 km

C 6 km

D 12 km

Answer: B

Explanation:



A travels 12 km towards north and then takes a left turn and covers another 5 km towards west direction. From there, he turns 180° anticlockwise, i.e. will revert his direction and travels 10 km further towards east.

Thus, the minimum distance between his initial and final position = $\sqrt{(12)^2 + (5)^2}$
 $= \sqrt{144 + 25} = \sqrt{169} = 13 \text{ km}$

=> 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-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. 'N' can be represented by 34, 43 etc. and 'H' can be represented by 56, 67 etc. Similarly, you have to identify the set for the word 'TEMP'.

Matrix - I					
	0	1	2	3	4
0	P	I	E	K	U
1	I	F	D	U	K
2	E	P	F	E	E
3	I	U	D	F	N
4	P	I	D	N	P

Matrix - II					
	5	6	7	8	9
5	T	H	L	M	L
6	J	T	H	H	M
7	C	C	L	M	C
8	J	C	M	T	H
9	L	J	O	O	T

- A 55, 23, 78, 44
- B 66, 24, 58, 59
- C 88, 86, 69, 95
- D 99, 02, 87, 22

Answer: A

Explanation:

- (A) : 55, 23, 78, 44 = **TEMP**
- (B) : 66, 24, 58, 59 = **TEML**
- (C) : 88, 86, 69, 95 = **TCML**
- (D) : 99, 02, 87, 22 = **TEMF**

=> Ans - (A)

Question 22

While introducing a boy, Raju says, "He is the son of my wife's sister." How is the boy related to Raju?

- A Brother
- B Nephew

C Cousin

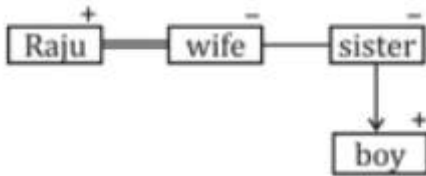
D Son

Answer: B

Explanation:

Raju's wife's sister = Raju's sister-in-law

Relation is :

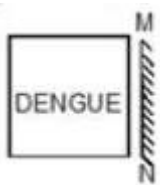


Thus, the boy is Raju's nephew.

=> Ans - (B)

Question 23

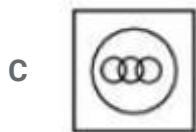
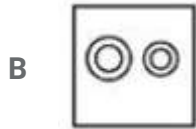
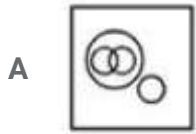
If a mirror is placed on the line MN, then which of the answer figures is the right image of the given figure ?



Answer: D

Question 24

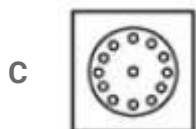
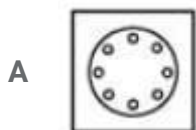
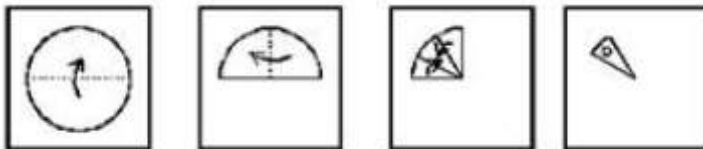
Identify the diagram that best represents the relationship among the given classes. Brain, Cerebrum, Liver, Human body



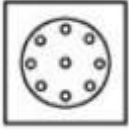
Answer: D

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 ?



D



Answer: C

General Awareness

Instructions

For the following questions answer them individually

Question 26

How many bits does an IP address contain?

- A 64 bits
- B 32 Bits
- C 128 Bits
- D 256 Bits

Answer: B

Question 27

Steam Engine was invented by?

- A Simon Stevin
- B George Stephenson
- C Gary Starkweather
- D Percy Spencer

Answer: B

Question 28

Medulla oblongata is a part of which of the following?

- A Heart

- B Brain
- C Lungs
- D Stomach

Answer: B

Question 29

.....is a typically onecelled, reproductive unit capable of giving rise to a new individual without sexual fusion.

- A Egg
- B Spore
- C Sperm
- D Seed

Answer: B

Question 30

Bacteria was discovered by

- A Antonie van Leeuwenhoek
- B Belarus
- C Hugo de Vries
- D Robert Brown

Answer: A

Question 31

Which among the following is false about alpha particles?

- A They have high ionizing power
- B They have high penetrating power
- C They have high kinetic energy
- D They are positively charged helium nuclei

Answer: B

Question 32

Which among the following is not a characteristic of oxidation reaction?

- A It involves addition of hydrogen
- B It involves addition of oxygen
- C It involves loss of electrons
- D It involves addition of electronegative element

Answer: A

Question 33

Chandragiri Fort is a historical fort, built in the 11th century. It is located in

- A Karnataka
- B Maharashtra
- C Madhya Pradesh
- D Andhra Pradesh

Answer: D

Question 34

Mohiniyattam is a dance form of which state?

- A Andhra Pradesh
- B Assam
- C Kerala
- D Tripura

Answer: C

Question 35

Irfaan loves black coffee. A roadside stall selling a cup of black coffee at Rs. 120, offered 25% discount to Irfaan. If Irfaan was willing to pay even Rs. 200 for that coffee, Irfaan's consumer surplus is

- A 90
- B 80
- C 30
- D 110

Answer: D

Explanation:

Marked price = Rs. 120

Discount % = 25%

$$\Rightarrow \text{Selling price} = 120 \times \frac{(100-25)}{100}$$

$$= 1.2 \times 75 = \text{Rs. } 90$$

Thus, Irfaan's consumer surplus = $200 - 90 = \text{Rs. } 110$

\Rightarrow Ans - (D)

Question 36

Which among the following does not count in the development expenditure of government?

- A Expenditure on economic services
- B Expenditure on social services
- C Grant to states
- D Defence expenditure

Answer: D

Question 37

Which of the following is responsible for Vermicomposting?

- A Fungus
- B Worms
- C Bacteria
- D Birds

Answer: B

Question 38

Turquoise is an ore/mineral of

- A Copper
- B Manganese
- C Mercury
- D Tin

Answer: A

Question 39

Shabana Azmi is not one of the following

- A Movie Actress
- B Activist
- C Feminist
- D Folk Dancer

Answer: D

Question 40

How many languages are officially recognized in India?

- A 17
- B 19
- C 22
- D 10

Answer: C

Question 41

Which planet is known as red planet?

- A Mercury
- B Pluto
- C Mars
- D Venus

Answer: C

Question 42

Who was Babur's Son?

- A Humayun
- B Shah Jahan
- C Akbar
- D Bahadur Shah

Answer: A

Question 43

Who was Prithviraj Chauhan's father?

- A Jeet Chauhan
- B Hayat Chauhan
- C Someshwar Chauhan
- D Trilok Chauhan

Answer: A

Question 44

.....is the 2016 Oscar Winner for Best Supporting Actor.

- A Mark Rylance
- B Christian Bale
- C Tom Hardy

D Mark Ruffalo

Answer: D

Question 45

Formula for distance is

A speed x time

B time / speed

C speed x acceleration

D velocity / speed

Answer: A

Question 46

What is the fundamental unit of amount of a substance?

A Mole

B Candela

C Kelvin

D Meter

Answer: A

Question 47

Republic means ultimate power is held by

A the monarch

B the people

C the winning party

D Ministers

Answer: B

Question 48

How many Rajya Sabha members, the President of India can nominate?

- A** 6
- B** 10
- C** 12
- D** 15

Answer: C

Question 49

Who is the first Indian woman Olympic medal Winner?

- A** Saina Nehwal
- B** Sania Mirza
- C** Dipa Karmakar
- D** Karnam Malleswari

Answer: D

Question 50

Who wrote the book "Ignited Minds"?

- A** Vikram Seth
- B** APJ Abdul Kalam
- C** Arundhati Roy
- D** Manmohan Singh

Answer: B

Instructions

For the following questions answer them individually

Question 51

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

Practice makes a man perfect

- A Perfection demands patience
- B Any problem can be solved if you are willing to try many times
- C Regular activity is the way to become proficient in it
- D It takes a long time to form a good habit

Answer: C

Question 52

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'.

A rate of growing is different(A)/for different sectors, but the service sector(B)/ always grows faster than agriculture.(C)/No error(D)

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

Answer: A

Question 53

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 food basket contained(A)/ a dark chocolate, an eclair and a pastry(B)/neatly wrapped in foil paper. (C)/No error

- A A
- B B
- C C

D D

Answer: B

Question 54

Rearrange the parts of the sentence in correct order.

The arbitration

Protected China's interests

Qin multiple ways

Reward has, nevertheless,

A RPQ

B RQP

C PQR

D QPR

Answer: A

Question 55

Improve the bracketed part of the sentence. Any bad habit must be nipped (on) the bud.

A on

B in

C off

D no improvement

Answer: B

Question 56

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.

At this critical juncture what the company needs is amarketing strategy.

A creditable

B adventurous

C incredible

D credible

Answer: D

Question 57

Select the antonym of mishmash

A potpourri

B medley

C organized

D haphazard

Answer: C

Question 58

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.

He is not a native speaker yet he has a goodover German.

A authority

B hold

C command

D expertise

Answer: C

Question 59

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

match or surpass a person by imitation.

A parallel

B emulate

C ditto

D impression

Answer: B

Question 60

Select the word with the correct spelling.

- A rootless
- B xpanded
- C fulstop
- D griling

Answer: A

Question 61

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

lack of skill, ability, or competence

- A ineptitude
- B dexterity
- C proficiency
- D prowess

Answer: A

Question 62

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

Pull the plug

- A Make a firm refusal
- B Save a situation by acting in the nick of time
- C To waste away somebody's effort
- D Prevent something from continuing

Answer: D

Question 63

Improve the bracketed part of the sentence. The patient died (of a wound and not of) cancer.

- A from a wound and not of
- B of a wound and not from
- C from a wound and not from
- D no improvement

Answer: A

Question 64

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.

I said, "My grandfather snored throughout the night."

- A I said my grandfather had snored throughout the night.
- B I said that my grandfather snored throughout the night.
- C I said that my grandfather had snored throughout the night.
- D I said that my grandfather had been snoring throughout the night.

Answer: C

Question 65

Select the antonym of generosity

- A altruism
- B general
- C largesse
- D malevolence

Answer: D

Question 66

Select the synonym of rip

- A cease
- B terminate
- C gash
- D sew

Answer: C

Question 67

**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.
Sunny was driving the car so fast that it slipped at the turn.**

- A Sunny slipped at the turn as he was driving the car so fast.
- B So fast was Sunny driving the car that it slipped at the turn.
- C The car was being driven by Sunny so fast that it slipped at the turn.
- D The car slipped at the turn as Sunny was driving it so fast.

Answer: C

Question 68

Select the word with the correct spelling.

- A terains
- B priestly
- C fereted
- D ablasion

Answer: B

Question 69

Select the synonym of stash

- A dearth

- B deficit
- C lack
- D cache

Answer: D

Question 70

Rearrange the parts of the sentence in correct order.

Senior officials

Pto negotiate a solution

Qreadiness

Rhave signalled China's

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

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.

A saint or a satyagrahi is often put on a(1)....., freezing her acts of goodness in time. Goodness acquires an act of fixed quality.....(2).....in amber. Rather than(3).....a living creature, a saint or an icon becomes a hoarding, a permanent spectacle or a redundant quotation. Saintliness or heroism becomes a bundle of pictures in a calendar, a statue(4).....inflexibly. Goodness becomes a stencil fixed(5).....time.

Question 71

(1)

- A pedestal
- B platform
- C plinth
- D podium

Answer: A

Question 72

(2)

- A ingrained
- B impacted
- C embedded
- D deepseated

Answer: C

Question 73

(3)

- A being
- B having been
- C had been
- D becoming

Answer: D

Question 74

(4)

- A standing
- B stands
- C stood
- D always stands

Answer: A

Question 75

(5)

- A of

- B in
- C with
- D about

Answer: B

Mathematics

Instructions

For the following questions answer them individually

Question 76

If $xy = 56$ and $x^2 + y^2 = 113$, then what will be the value of $(x + y)$?

- A 29
- B 21
- C 36
- D 15

Answer: D

Explanation:

Given : $(x^2 + y^2) = 113$ and $xy = 56$

Using $(x + y)^2 = x^2 + y^2 + 2xy$

$$\Rightarrow (x + y)^2 = 113 + (2 \times 56)$$

$$\Rightarrow (x + y)^2 = 113 + 112 = 225$$

$$\Rightarrow (x + y) = \sqrt{225} = 15$$

\Rightarrow Ans - (D)

Question 77

If $3A = 7B = 13C$, then $A : B : C$ is equal to

- A 21:39:91
- B 39:91:21

C 13:7:3

D 91:39:21

Answer: D

Explanation:

$$\text{Let } 3A = 7B = 13C = k$$

$$\Rightarrow A = \frac{k}{3}, B = \frac{k}{7}, C = \frac{k}{13}$$

$$\Rightarrow \text{Ratio of } A : B : C = \frac{k}{3} : \frac{k}{7} : \frac{k}{13}$$

$$= \frac{1}{3} : \frac{1}{7} : \frac{1}{13}$$

L.C.M. of 3, 7 and 13 = 273, thus multiplying by 273, we get :

$$= \frac{273}{3} : \frac{273}{7} : \frac{273}{13}$$

$$= 91 : 39 : 21$$

\Rightarrow Ans - (D)

Question 78

Which of the following equations has 3 as a root?

A $x^2 - 7x + 12 = 0$

B $x^2 - 5x + 12 = 0$

C $x^2 + 3x + 12 = 0$

D $x^2 + 3x - 12 = 0$

Answer: A

Explanation:

$$(A) : x^2 - 7x + 12 = 0$$

$$\Rightarrow x^2 - 4x - 3x + 12 = 0$$

$$\Rightarrow x(x - 4) - 3(x - 4) = 0$$

$$\Rightarrow (x - 4)(x - 3) = 0$$

$$\Rightarrow x = 3, 4$$

\Rightarrow Ans - (A)

Question 79

Amar is 2 times as good a workman as Badal and therefore is able to finish a job in 15 days less than Badal. In how many days can they together complete the job?

A 30 days

B 40 days

C 10 days

D 20 days

Answer: C

Explanation:

Ratio of times taken by Amar and Badal = 1 : 2

The time difference is (2 - 1) 1 day while Badal take 2 days and Amar takes 1 day.

If difference of time is 1 days, Badal takes 2 days.

If difference of time is 15 days, Badal takes = $\frac{2}{1} \times 15 = 30$ days

So, Amar takes 30 days

Amar's 1 day's work = $\frac{1}{30}$

Badal's 1 day's work = $\frac{1}{15}$

(Amar + Badal)'s 1 day's work together = $\frac{1}{30} + \frac{1}{15} = \frac{3}{30} = \frac{1}{10}$

∴ Amar and Badal together can do the work in = 10 days

=> Ans - (C)

Question 80

What is the equation of the line which intercepts xaxis and yaxis at 3/4 and 2/3 respectively?

A $8x - 9y = 6$

B $9x - 8y = 12$

C $8x + 9y = 6$

D $9x + 8y = 12$

Answer: C

Explanation:

A line with x-intercept 3/4 will intercept x-axis at $(\frac{3}{4}, 0)$

A line with y-intercept 2/3 will intercept y-axis at $(0, \frac{2}{3})$

=> Slope, $m = \frac{2}{3} \div \frac{-3}{4} = \frac{-8}{9}$

Equation of line passing thorough points (x_1, y_1) and slope $m = (y - y_1) = m(x - x_1)$

=> Equation of line = $(y - 0) = \frac{-8}{9}(x - \frac{3}{4})$

=> $9y = -8x + 6$

$$\Rightarrow 8x + 9y = 6$$

\Rightarrow Ans - (C)

Question 81

What is the value of $\tan 3A$?

A $(3\tan A - \tan^3 A)/(1 - 3\tan^2 A)$

B $(3\tan A + \tan^3 A)/(1 + 3\tan^2 A)$

C $(3\tan A - \tan^3 A)/(1 + 3\tan^2 A)$

D $(3\tan A + \tan^3 A)/(1 - 3\tan^2 A)$

Answer: A

Explanation:

Expression : $\tan(3A)$

$$= \frac{\sin(3A)}{\cos(3A)} = \frac{\sin(2A+A)}{\cos(2A+A)}$$

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

Using, $\sin(2x) = 2\sin x \cos x$ and $\cos(2x) = \cos^2 x - \sin^2 x$

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

Taking $\sin A$ common from numerator and $\cos A$ from denominator,

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

$$= \tan A \frac{3\cos^2 A - \sin^2 A}{\cos^2 A - 3\sin^2 A}$$

Dividing both numerator and denominator by $\cos^2 A$, we get :

$$= \tan A \frac{3 - \tan^2 A}{1 - 3\tan^2 A}$$

$$= \frac{3\tan A - \tan^3 A}{1 - 3\tan^2 A}$$

\Rightarrow Ans - (A)

Question 82

An angle is greater than its complementary by 20° . What will be the measure of the angle?

A 55°

B 35°

C 100°

D 80°

Answer: A

Explanation:

Let the angle = θ

Its complementary angle = $(\theta + 20^\circ)$

Sum of an angle and its complementary angle = 90°

$$\Rightarrow \theta + (\theta + 20^\circ) = 90^\circ$$

$$\Rightarrow 2\theta = 90^\circ - 20^\circ = 70^\circ$$

$$\Rightarrow \theta = \frac{70}{2} = 35^\circ$$

\therefore Measure of the angle = $35 + 20 = 55^\circ$

\Rightarrow Ans - (A)

Question 83

The radius of a hemisphere is 21 cm, what is its volume? (Take $\pi = 22/7$)

A 38808 cubic cms

B 9702 cubic cms

C 19404 cubic cms

D 29106 cubic cms

Answer: C

Explanation:

Radius of hemisphere, $r = 21$ cm

$$\text{Volume of hemisphere} = \frac{2}{3}\pi r^3$$

$$= \frac{2}{3} \times \frac{22}{7} \times (21)^3$$

$$= 44 \times 21 \times 21$$

$$= 19404 \text{ cm}^3$$

\Rightarrow Ans - (C)

Question 84

If $\cot^2 A - \cos^2 A = x$, then value of x is

A $\tan^2 A \sec^2 A$

B $\cot A \cos A$

C $\cot^2 A \cos^2 A$

D $\tan A \sec A$

Answer: C

Explanation:

Expression : $\cot^2 A - \cos^2 A = x$

$$= \frac{\cos^2 A}{\sin^2 A} - \cos^2 A$$

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

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

$$= \cos^2 A \times \frac{\cos^2 A}{\sin^2 A}$$

$$= \cot^2 A \cos^2 A$$

=> Ans - (C)

Question 85

What are the coordinates of the centroid of a triangle, whose vertices are A(-2,5), B(4,4) and C(7,-3)?

A (4,3)

B (1,0)

C (3,3)

D (3,2)

Answer: D

Explanation:

Coordinates of centroid of triangle with vertices (x_1, y_1) , (x_2, y_2) and (x_3, y_3) is $\left(\frac{x_1 + x_2 + x_3}{3}, \frac{y_1 + y_2 + y_3}{3} \right)$

Let coordinates of centroid G = (x, y)

Vertex A(-2,5) and Vertex B(4,4) and C = (7,-3)

$$\Rightarrow x = \frac{-2+4+7}{3}$$

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

Similarly, $\Rightarrow y = \frac{5+4-3}{3}$

$$\Rightarrow y = \frac{6}{3} = 2$$

\therefore Coordinates of centroid G = (3,2)

=> Ans - (D)

Question 86

In a triangle the length of the side opposite the right angle is 6 cm, what is the length of the side opposite to the angle which measures 30° ?

- A 3 cm
- B $3\sqrt{3}$ cm
- C $\frac{3}{2}$ cm
- D $(\frac{3}{2})\sqrt{3}$

Answer: A

Explanation:

In the given triangle, two angles are 30° and 90° , \Rightarrow Third angle = 60°

In a 30-60-90 triangle, the hypotenuse is always twice as long as the side opposite the 30° angle and the side opposite the 60° angle is $\sqrt{3}$ times as long as the side opposite the 30° angle.

The ratio of sides opposite 30° , 60° and 90° angles = $1 : \sqrt{3} : 2$

Length of the side opposite the 90° angle = 6 cm

\Rightarrow Length of side opposite the 30° angle = $\frac{6}{2} = 3$ cm

\Rightarrow Ans - (A)

Question 87

If $2x + 5 > 2 + 3x$ and $2x - 3 \leq 4x - 5$, then x can take which of the following values?

- A -2
- B 2
- C 4
- D -4

Answer: B

Explanation:

Expression 1 : $2x + 5 > 2 + 3x$

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

$\Rightarrow x < 3$ -----(i)

Expression 2 : $2x - 3 \leq 4x - 5$

$\Rightarrow 4x - 2x \geq -3 + 5$

$\Rightarrow 2x \geq 2$

$$\Rightarrow x \geq 1 \text{ -----(ii)}$$

Combining inequalities (i) and (ii), we get : $1 \leq x < 3$

The only value that x can take among the options = 2

\Rightarrow Ans - (B)

Question 88

If the radius of a circle is increased by 14% its area increases by

- A 28 percent
- B 29.96 percent
- C 14 percent
- D 14.98 percent

Answer: B

Explanation:

Let radius = 10 cm

$$\Rightarrow \text{Area of circle} = \pi(10)^2 = 100\pi \text{ sq. cm}$$

$$\text{If radius is increased by 14\%, } \Rightarrow \text{New radius} = 10 + \frac{14}{100} \times 10 = 11.4 \text{ cm}$$

$$\text{New area} = \pi(11.4)^2 = 129.96\pi \text{ sq. cm}$$

$$\Rightarrow \% \text{ increase in area} = \frac{129.96 - 100}{100} \times 100$$

$$= 29.96\%$$

\Rightarrow Ans - (B)

Question 89

What is the value of $\tan 150^\circ$?

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

Answer: D

Explanation:

Expression : $\tan 150^\circ$

$$= \tan(180 - 30)^\circ$$

$$= -\tan(30)^\circ$$

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

=> Ans - (D)

Question 90

When 0.151515.....is converted into a fraction, then the result is

A 5/33

B 17/33

C 9/11

D 7/33

Answer: A

Explanation:

Let $x = 0.151515\dots$ -----(i)

Multiplying both sides by 100

=> $100x = 15.151515\dots$ -----(ii)

Subtracting equation (i) from (ii)

$$\Rightarrow 100x - x = (15.151515\dots) - (0.151515\dots)$$

$$\Rightarrow 99x = 15$$

$$\Rightarrow x = \frac{15}{99} = \frac{5}{33}$$

So, 0.151515....written in the form p/q is 5/33

=> Ans - (A)

Question 91

Among three numbers, the first is twice the second and thrice the third. If the average of three numbers is 429, then what is the difference between the first and the third number?

A 412

B 468

C 517

D 427

Answer: B

Explanation:

Let the first number be $6x$

=> Second number = $3x$ and third number = $2x$

=> Average = $\frac{6x+3x+2x}{3} = 429$

=> $11x = 429 \times 3 = 1287$

=> $x = \frac{1287}{11} = 117$

∴ Difference between first and third number = $6x - 2x = 4x$

= $4 \times 117 = 468$

=> Ans - (B)

Question 92

If $(8x - 4) = (3x + 6)$, then the numerical value of $(x + 1)^3$ is

A 3

B 9

C 27

D 81

Answer: C

Explanation:

Given : $(8x - 4) = (3x + 6)$

=> $8x - 3x = 6 + 4$

=> $5x = 10$

=> $x = \frac{10}{5} = 2$

To find : $(x + 1)^3$

= $(2 + 1)^3 = 3^3 = 27$

=> Ans - (C)

Question 93

If the amount received at the end of 2nd and 3rd year at compound interest on a certain Principal is Rs 30250, and Rs 33275 respectively, what is the rate of interest?

A 10 percent

B 5 percent

C 20 percent

D 16 percent

Answer: A

Explanation:

Compound interest at the end of 2nd year = Rs. 30,250

Compound interest at the end of 3rd year = Rs. 33,275

=> Difference = 33275 - 30250 = Rs. 3025

This is the interest obtained on the amount of 2nd year.

∴ Rate of interest, $r = \frac{3025}{30250} \times 100 = 10\%$

=> Ans - (A)

Question 94

When a discount of 20% is given on an African safari ticket, the profit is 43%. If the discount is 28%, then the profit is

A 71 percent

B 113.3 percent

C 13.6 percent

D 28.7 percent

Answer: D

Explanation:

Let marked price = Rs. $100x$

After 20% discount, selling price = $\frac{100-20}{100} \times 100x = \text{Rs. } 80x$

Let Cost price = Rs. y

=> Profit % = $\frac{80x-y}{y} \times 100 = 43$

=> $\frac{80x-y}{y} = \frac{43}{100}$

=> $8000x - 100y = 43y$

=> $y = \frac{8000x}{143} \approx \text{Rs. } 56x$

If, discount = 28%, => Selling price = $\frac{100-28}{100} \times 100x = \text{Rs. } 72x$

∴ Profit % = $\frac{72x-56x}{56x} \times 100 \approx 28.7\%$

Ans - (D)

Question 95

A missile travels at 1440 km/h. How many metres does it travel in one second?

- A 374 metres
- B 385 metres
- C 394 metres
- D 400 metres

Answer: D

Explanation:

Speed of missile = 1440 km/hr

$$\Rightarrow \text{Speed in m/s} = 1440 \times \frac{5}{18}$$

$$= 80 \times 5 = 40 \text{ m/s}$$

\therefore In 1 second, it travels 40 metres

\Rightarrow Ans - (D)

Question 96

At 13% discount the selling price of a oven is Rs 18000, what is the selling price if the discount is 27.5%?

- A Rs 10875
- B Rs 12288.75
- C Rs 15000
- D Rs 16638.75

Answer: C

Explanation:

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

$$\text{If discount is 13\%, Selling price} = \frac{100-13}{100} \times 100x = 87x$$

According to ques, $\Rightarrow 87x = 18000$

$$\Rightarrow x = \frac{18000}{87} = 206.9$$

$$\text{If discount is 27.5\%, selling price} = \frac{100-27.5}{100} \times 100x = 72.5x$$

$$= 72.5 \times 206.9 = 15000.25 \approx Rs.15,000$$

\Rightarrow Ans - (C)

Question 97

Refer the below data table and answer the following Question.

	Number of employees	Annual salary (in lakhs)	Bonus as percent of annual salary
Manager	3	54	50%
Executive	5	20	20%
Trainee	3	2	20%

What is the average bonus (in rupees)?

- A 10220001
- B 253333
- C 314000
- D 929091

Answer: D

Explanation:

Total bonus of managers (in lakh) = $3 \times 54 \times \frac{50}{100} = 81$ lakhs

Total bonus of executive (in lakh) = $5 \times 20 \times \frac{20}{100} = 20$ lakhs

Total bonus of trainee (in lakh) = $3 \times 2 \times \frac{20}{100} = 1.2$ lakhs

=> Average bonus in rupees = $\frac{(81+20+1.2)}{(3+5+3)}$

= $\frac{102.2}{11} = 9.2909$ lakhs = 929091

=> Ans - (D)

Question 98

Refer the below data table and answer the following Question.

	2011	2012	2013	2014	2015
Company A	4000	3000	1000	5000	2000
Company B	2000	2000	1000	2000	4000
Company C	4000	2000	4000	1000	4000

For which of the following pairs of years the total exports from the three Companies together are equal?

- A 2011 & 2015
- B 2013 & 2015
- C 2011 & 2012

D 2014 & 2015

Answer: A

Explanation:

Total exports from the three companies together in :

$$2011 = 4000 + 2000 + 4000 = 10000$$

$$2012 = 3000 + 2000 + 2000 = 7000$$

$$2013 = 1000 + 1000 + 4000 = 6000$$

$$2014 = 5000 + 2000 + 1000 = 8000$$

$$2015 = 2000 + 4000 + 4000 = 10000$$

Clearly, total exports in 2011 and 2015 are equal to 10000

=> Ans - (A)

Question 99

Refer the below data table and answer the following Question.

Year	Profit or (-Loss) in Rs crore
2011	15
2012	-10
2013	10
2014	20
2015	-5

What was the total Profit or loss of the company in last 5 years?

A Profit of Rs 30 crores

B Profit of Rs 40 crores

C Loss of Rs 30 crores

D Loss of Rs 40 crores

Answer: A

Explanation:

Total profit or loss in Rs. crore in last 5 years

$$= 15 - 10 + 10 + 20 - 5$$

$$= 45 - 15 = 30$$

Since, it is positive, thus profit of Rs. 30 crore

=> Ans - (A)

Question 100

Refer the below data table and answer the following Question.

India's Exports in 2015	Value in Million US\$
Jewellery	525
Software	875
Cotton	650
Steel	975
Electronics	625

The pie chart shows India's exports in 2015. Steel was what percent of total exports?

- A 26.71 percent
- B 29.21 percent
- C 31.71 percent
- D 24.21 percent

Answer: A

Explanation:

Value in millions of Steel = 975

Total exports = 525 + 875 + 650 + 975 + 625 = 3650

$$\Rightarrow \% \text{ of Jewelry in total exports} = \frac{975}{3650} \times 100$$

$$= \frac{975 \times 2}{73} \approx 26.71\%$$

\Rightarrow Ans - (A)

SSC CHSL 10 Jan 2017 Evening Shift

Reasoning

Instructions

For the following questions answer them individually

Question 1

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

Omelette : Egg :: Cloth : ?

- A Ore
- B Wood
- C Fibre
- D Pulp

Answer: C

Explanation:

Expression = Omelette : Egg :: Cloth : ?

Omelette is made from egg, similarly cloth is made from *fibre*.

=> Ans - (C)

Question 2

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

JK : PQ :: FG : ?

- A HI
- B TU
- C EF
- D UT

Answer: B

Explanation:

Expression = JK : PQ :: FG : ?

When the code is reversed, alphabets at the corresponding position from the *reverse* end are written.

Answer: B

Explanation:

Expression = $7 : 56 :: 9 : ?$

The pattern followed is = $x : x(x + 1)$

Eg :- $7 : 7(7 + 1) = 7 : 56$

Similarly, $9 \times (9 + 1) = 9 \times 10 = 90$

=> Ans - (B)

Question 5

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

A Honesty

B Veracity

C Deceit

D Sincerity

Answer: C

Explanation:

Honesty, veracity and sincerity are synonyms meaning truthfulness, hence deceit is the odd one out.

=> Ans - (C)

Question 6

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

A TBC

B DEZ

C VUW

D BAM

Answer: A

Explanation:

The last three letters contain one vowel, hence TBC is the odd one out.

=> Ans - (A)

Question 7

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

A 216

B 841

C 676

D 784

Answer: A

Explanation:

$$216 = (6)^3$$

$$841 = (29)^2$$

$$676 = (26)^2$$

$$784 = (28)^2$$

=> Ans - (A)

Question 8

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

A 422

B 716

C 928

D 734

Answer: C

Explanation:

The positive difference between the first two digits is equal to the last digit, but $9 - 2 \neq 8$, hence 928 is the odd one out.

=> Ans - (C)

Question 9

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

?, Oxygen, Argon, Carbon dioxide

- A Nitrogen
- B Water vapour
- C Methane
- D Carbon monoxide

Answer: A

Explanation:

The gases are given in decreasing order of their content in the atmosphere.

= Nitrogen -> Oxygen -> Argon -> Carbon dioxide

=> Ans - (A)

Question 10

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

4, 6, 9, 13.5, ?

- A 23.25
- B 32.5
- C 31.25
- D 20.25

Answer: D

Explanation:

Each term is multiplied by 1.5

$$4 \times 1.5 = 6$$

$$6 \times 1.5 = 9$$

$$9 \times 1.5 = 13.5$$

$$13.5 \times 1.5 = \mathbf{20.25}$$

=> Ans - (D)

Question 11

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) Real number includes the natural number.
- (II) Natural number is not included in whole number.

Conclusion:

- (I) Natural number is not whole number.
- (II) Real number is a natural and whole number

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

Answer: A

Question 12

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

WW, ss, QQ, ? , KK

- A gg
- B MM
- C mm
- D ee

Answer: C

Explanation:

The pattern followed is that alternate term are written in capital and small letters.

WW (-4 letters) = ss (-2 letters) = QQ (-4 letters) = mm (-2 letters) = KK

Thus, missing term = **mm**

=> Ans - (C)

Question 13

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

IG, MK, RP, ?

A ZA

B AB

C XV

D GE

Answer: C

Explanation:

Expression : IG, MK, RP, ?

The pattern followed in each letter of the terms is :

1st letter : I (+4 letters) = M (+5 letters) = R (+6 letters) = X

2nd letter : G (+4 letters) = K (+5 letters) = P (+6 letters) = V

Thus, missing term = **XV**

=> Ans - (C)

Question 14

The sum of the ages of Anuj and his mother is 32, and his father's age is 38 years. If his father is 8 years elder to his mother, what is the age (in years) of Anuj?

A 4

B 2

C 1

D 5

Answer: B

Explanation:

Anuj's father's age = 38 years

=> His mother's age = $38 - 8 = 30$ years

Also, sum of the ages of Anuj and his mother = 32

\therefore Anuj's age = $32 - 30 = 2$ years

=> Ans - (B)

Question 15

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

- i. Amoeba
- ii. Amok
- iii. Amiable
- iv. Amalgamate

A ii, i, iv, iii

B iii, iv, ii, i

C iv, iii, i, ii

D ii, iv, iii, i

Answer: C

Explanation:

As per the order of dictionary :

= Amalgamate -> Amiable -> Amoeba -> Amok

≡ iv, iii, i, ii

=> Ans - (C)

Question 16

In a certain code language, "ROYALTY" is written as "ZUMBZPS". How is "LINGER" written in that code language?

A SFHJOM

B SFHOJM

C SHFOJM

D SHFOMJ

Answer: B

Explanation:

"ROYALTY" is written as "ZUMBZPS"

The pattern followed when the word is reversed is :

Y	T	L	A	Y	O	R
(+1)	(+1)	(+1)	(+1)	(+1)	(+1)	(+1)
Z	U	M	B	Z	P	S

Similarly, reverse of LINGER :

R	E	G	N	I	L
(+1)	(+1)	(+1)	(+1)	(+1)	(+1)
S	F	H	O	J	M

=> Ans - (B)

Question 17

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

16	81	49
6	5	6
52	106	?

A 24

B 32

C 20

D 85

Answer: D

Explanation:

In each column the number at the end is obtained by adding the square of the second number to the first number.

$$\text{Eg :- } (6)^2 + 16 = 36 + 16 = 52$$

$$(5)^2 + 81 = 25 + 81 = 106$$

$$\text{Similarly, } (6)^2 + 49 = 36 + 49 = 85$$

=> Ans - (D)

Question 18

If "A" denotes "multiplied by", "C" denotes "subtracted from", "D" denotes "added to" and "B" denotes "divided by", then $8 \text{ C } 45 \text{ D } 180 \text{ B } 9 \text{ A } 11 = ?$

A 141

B 142

C 183

D 143

Answer: C

Explanation:

Expression : $8 C 45 D 180 B 9 A 11 = ?$

$$\equiv 8 - 45 + 180 \div 9 \times 11$$

$$= -37 + (20 \times 11)$$

$$= -37 + 220 = 183$$

=> Ans - (C)

Question 19

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

_b_b_da_bbcd

A dcdc

B caca

C addd

D abcb

Answer: D

Explanation:

The pattern followed is that in groups of 6, the term 'abbbcd' is repeated.

= abbbcd abbbcd

=> Ans - (D)

Question 20

Amit's house is to the east of Ankit's house. Suman's house is to the south of Amit's house. Raman's house is to the east of Amit's house. In which direction is Raman's house with respect to Suman's house?

A East

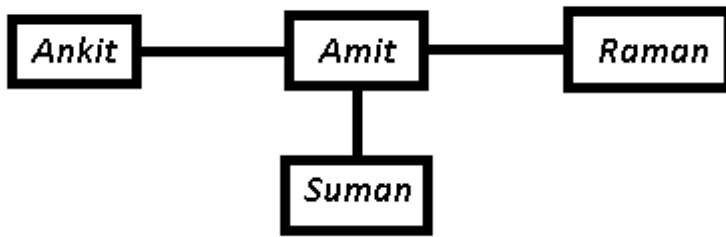
B North-east

C South-east

D South

Answer: B

Explanation:



Amit's house is to the east of Ankit's house. Suman's house is to the south of Amit's house.

Also, Raman's house is to the east of Amit's house.

Thus, Raman's house is north-east of Suman's house.

=> 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-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, 'N' can be represented by 21, 67 etc. and 'R' can be represented by 66, 57 etc. Similarly, you have to identify the set for the word 'NUMBER'.

Matrix - I

	0	1	2	3	4
0	Q	O	A	N	B
1	W	I	N	H	L
2	E	N	S	G	O
3	N	Y	D	O	M
4	M	T	O	F	A

Matrix - II

	5	6	7	8	9
5	Z	M	R	S	Q
6	X	R	N	W	A
7	C	S	Y	E	U
8	S	N	T	E	S
9	V	B	E	R	U

A 67, 99, 56, 04, 02, 57

B 12, 79, 56, 04, 20, 34

C 86, 99, 56, 43, 20, 57

D 21, 79, 56, 04, 20, 57

Answer: D

Explanation:

(A) : 67, 99, 56, 04, 02, 57 = NUMBAR

(B) : 12, 79, 56, 04, 20, 34 = NUMBEM

(C) : 86, 99, 56, 43, 20, 57 = NUMFER

(D) : 21, 79, 56, 04, 20, 57 = **NUMBER**

=> Ans - (D)

Question 22

Introducing a boy Ankur says, "He is the son of the only sister of my grandfather's daughter-in-law". How is the boy related to Ankur?

- A Nephew
- B Son-in-law
- C Son
- D Cousin

Answer: D

Explanation:

Ankur's grandfather's daughter-in-law = Ankur' mother

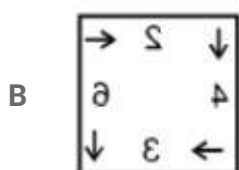
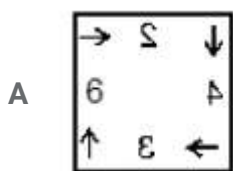
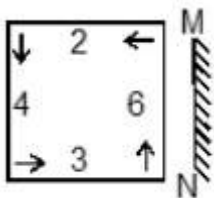
Only sister of Ankur's mother = Ankur's aunt

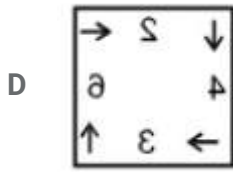
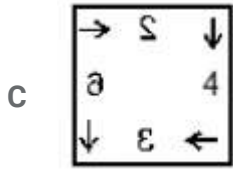
Now, that boy is son of Ankur's aunt, => Ankur and the boy are cousins.

=> Ans - (D)

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 ?



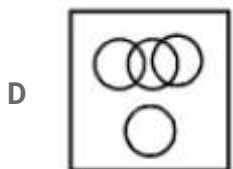
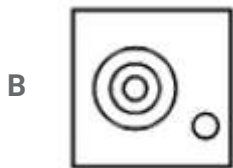
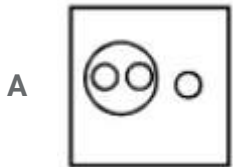


Answer: D

Question 24

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

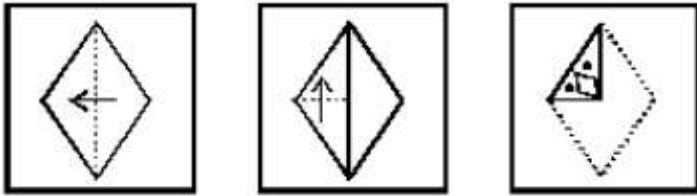
Festivals, Eid, Durga Pooja, Deepawali



Answer: C

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: B

General Awareness

Instructions

For the following questions answer them individually

Question 26

DNS is a networking term that refers to

A Domain Name System

B Digital Network Service

C Disk Numbering Sequence

D Data Number System

Answer: A

Question 27

Telephone exchange was invented by?

A Tivadar Puskas

B Joseph Priestley

C Petrache Poenaru

D James Leonard Plimpton

Answer: A

Question 28

Scurvy (bleeding of gums) is caused by the deficiency of which vitamin?

A Vitamin K

B Vitamin B2

C Vitamin C

D Vitamin A

Answer: C

Question 29

Achras sapota is the scientific name of

A Custard Apple

B Gulmohar

C Tamarind

D Chiku

Answer: D

Question 30

Prawn belongs to the phylum

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

Answer: A

Question 31

What does a catalyst do in a reaction?

- A Changes potential energy of reactants
- B Changes kinetic energy of reactants
- C Changes potential energy of products
- D Changes activation energy

Answer: D

Question 32

Adding which substance gives green colour to glass?

- A Calcium oxide
- B Iron oxide
- C Chromium oxide
- D Manganese oxide

Answer: C

Question 33

Ellora Caves is in

- A Karnataka
- B Madhya Pradesh
- C Maharashtra
- D Rajasthan

Answer: C

Question 34

_____ festival is celebrated on a full-moon day.

- A Dussehra
- B Holi
- C Christmas
- D Rakhi

Answer: B

Question 35

If demand curve for a fishing rod is $D = 37000 - 11P$ and supply curve is $S = 12000 + 9P$, find the equilibrium quantity?

- A 1250 units
- B 23250 units
- C 52350 units
- D 2500 units

Answer: B

Question 36

Balance of Trade is the difference between

- A Country's Income and Expense
- B Country's Exports and Imports

C Country's Tax Revenue and Expense

D Country's capital inflow and outflow

Answer: B

Question 37

Which of the following gases if present in the atmosphere can be detected by its odour?

A Ethane

B Sulphur dioxide

C Hydrogen

D Carbon monoxide

Answer: B

Question 38

The number of biogeographical zones in India are

A 2

B 10

C 5

D 6

Answer: B

Question 39

_____ is an indigenous light combat aircraft of India?

A Vishal

B Garv

C Tejas

D Dhanush

Answer: C

Question 40

In which direction does the earth rotate around its axis?

- A east to west
- B west to east
- C north to south
- D south to east

Answer: B

Question 41

Which state in India receives the highest rainfall?

- A Meghalaya
- B Rajasthan
- C Uttarakhand
- D Kerala

Answer: A

Question 42

Tipu Sultan was also known as Tiger of _____.

- A Mysore
- B Delhi
- C Agra
- D Gwalior

Answer: A

Question 43

Sri Aurobindo was born in the year

- A 1772

B 1822

C 1872

D 1922

Answer: C

Question 44

Highest Civilian Honour received by A. P. J. Abdul Kalam is

A Padma Shri

B Padma Bhushan

C Padma Vibhushan

D Bharat Ratna

Answer: D

Question 45

What will happen to the force between the two positive charges which are released after being held near each other?

A Force will increase

B Force will decrease

C Force will stay the same

D Force first increases to reach maximum before starting to decrease

Answer: B

Question 46

Which device is used to measure earthquakes?

A Endoscope

B Thermometer

C Sonograph

D Seismograph

Answer: D

Question 47

Which bill cannot originate in Rajya Sabha?

- A** Constitutional Amendment Bill
- B** Ordinary Bill
- C** Fundamental Bill
- D** Money Bill

Answer: D

Question 48

Who can initiate the process of removal of the President before the expiry of his term?

- A** Lok Sabha
- B** Supreme court
- C** Common man
- D** Member of parliament

Answer: A

Question 49

Kobe Bryant is associated with which sport?

- A** Lawn Tennis
- B** Basketball
- C** Formula One
- D** WWE

Answer: B

Question 50

Who wrote the Panchatantra?

- A Vyasa
- B Vishnu Sharma
- C Valmiki
- D Yajnavalkya

Answer: B

English

Instructions

For the following questions answer them individually

Question 51

Select the word with the correct spelling.

- A lassoing
- B psychik
- C thacher
- D squeezer

Answer: A

Explanation:

Only 'lassoing' is correctly spelt. psychik should be spelt as 'psychic', thacher should be spelt as 'thatcher', 'squeezer' should be spelt as 'squeezer'.

Question 52

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.

Rational thinkers are intellectually _____ than those who accept faith without questioning the age old practices.

- A cultured
- B sophisticated

C superior

D modern

Answer: C

Question 53

Select the synonym of ancient

A topical

B extant

C archaic

D fad

Answer: C

Question 54

Choose the antonym of analogue

A correlate

B cognate

C dialogue

D difference

Answer: D

Explanation:

'Analogue' means a person or a thing seen as comparable to another.

So out of the given options 'difference' must be the antonym of 'analogue'.

Hence, option D is the right choice.

Question 55

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

A hot potato

A A war like situation which could have been easily avoided

- B** A common eatery but favoured by celebrities
- C** A controversial situation which is awkward to deal with
- D** A celebrity who keeps getting into some or the other controversy

Answer: C

Question 56

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 shifting task is almost done,(A)/only the furnitures(B)/have to be delivered.(C)/No error(D)

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

Answer: B

Question 57

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

A spot or a stain caused by a discolouring substance

- A** Hue
- B** Blot
- C** Tint
- D** Dye

Answer: B

Question 58

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.

He said, "I bought an iPhone 6 yesterday."

- A** He said that he had bought an iPhone 6 the previous day.

- B** He said he bought an iPhone 6 the previous day.
- C** He said that he has bought an iPhone 6 yesterday.
- D** He exclaimed, an iPhone 6 has been bought by him yesterday.

Answer: A

Question 59

Select the antonym of amusement

- A** mischief
- B** naughty
- C** melancholy
- D** hilarity

Answer: C

Question 60

Rearrange the parts of the sentence in correct order.

This alone

P-should alert us to what

Q-is actually about

R-the demand for a Uniform Civil Code

- A** PRQ
- B** PQR
- C** QPR
- D** RPQ

Answer: A

Question 61

Select the synonym of 'splayed'

- A** nimble
- B** jade

C frayed

D spread

Answer: D

Explanation:

'Splay' means to spread things apart. Hence, option D is the correct answer.

Question 62

Select the word with the correct spelling.

A humable

B customer

C breches

D boufant

Answer: B

Question 63

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'.

With little creativity and hard work(A)/the project could have been (B)/successfully completed.(C)/No error

A A

B B

C C

D D

Answer: A

Question 64

Improve the bracketed part of the sentence.

Hardly had she finished her dinner (then) the doorbell rang.

A than

B when

- C while
- D no improvement

Answer: B

Question 65

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

New kid on the block

- A New rules which are bound to fail
- B A junior
- C A new social trend
- D A newcomer

Answer: D

Question 66

Rearrange the parts of the sentence in correct order.

Ironically, in spite of a decline in poverty,

P-the proportion of

Q-the population receiving welfare

R-benefits has risen sharply

- A QRP
- B PQR
- C RPQ
- D QPR

Answer: B

Question 67

Improve the bracketed part of the sentence.

In the housing society where I live there is a nice house (to let out).

- A to let
- B for letting

- C to be let out
- D no improvement

Answer: A

Question 68

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

A person who applies for a job or is nominated for election

- A Candidate
- B Elect
- C Volunteer
- D Nominator

Answer: A

Question 69

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.

Mother filled dark filtered coffee in the cup.

- A The cup was filled with dark filtered coffee by mother.
- B Mother filled in the cup coffee which was dark and filtered.
- C The cup was being filled by mother with dark filtered coffee.
- D The filtered coffee which was dark was filled into the cup by mother.

Answer: A

Question 70

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.

Politicians requested both the warring communities to _____ restraint.

- A depict
- B enforce

C show

D exercise

Answer: D

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.

Sometimes the grand _____(1)_____ of the Left and the Right do not seem to have any relationship with the lived experiences of ordinary Indians. For the past two decades, the Left has tried to expand social welfare programmes ____ (2)_____ the poor in the country by highlighting the growing _____(3)_____ between the rich and the poor. The Right, on the other hand, points to the growing _____(4)_____ of politically driven welfare policies and emphasises the need for economic growth to ___(5)_____ poverty and improve the lives of the poor.

Question 71

(1)

A histories

B plots

C versions

D narratives

Answer: D

Explanation:

'narratives' best fits the context of the blank as narrative means a story or a tale. The author wants to suggest that the story of neither the left nor the right seems to have any relationship with the ordinary citizens. Hence, option D is the correct choice.

Question 72

(2)

A for

B which

C that

D of

Answer: A

Explanation:

Any program is 'for the people'. Hence, 'for' is the best fit for the given blank. The other words do not make a logical or grammatical sense in the given blank.

Question 73

(3)

- A dissimilarities
- B discrepancies
- C disparities
- D disillusion

Answer: C

Explanation:

The author is trying to convey the growing inequalities between the rich and the poor. Hence, 'disparities' is the best fit for the given blank. It means 'inequalities'. Hence, option C is the correct answer.

Question 74

(4)

- A issue
- B matter
- C pain
- D burden

Answer: D

Explanation:

Growing 'issue' or growing 'matter' does not make sense in the given context. Among pain and burden, the latter is a better fit as the author is trying to highlight the negative implications of politically driven schemes. Hence, 'burden' is the best fit for the given blank.

Question 75

(5)

- A agitate
- B alleviate
- C aggravate

D depress

Answer: B

Explanation:

The author is trying to highlight the need to solve the problems of the poor. Hence, 'alleviate' is the best fit for the given blank as to alleviate means to provide relief.

Mathematics

Instructions

For the following questions answer them individually

Question 76

Daily ticket of a local train costs Rs 140 and Monthly Pass costs Rs 3276. If Mohan buys the Monthly Pass and travels for 30 days in a month then what amount does he save?

A 18 percent

B 16 percent

C 15 percent

D 22 percent

Answer: D

Explanation:

Train ticket cost for 1 day = Rs. 140

=> Cost for 30 days = $30 \times 140 = \text{Rs. } 4200$

Cost of monthly pass = Rs. 3276

=> Money saved = $4200 - 3276 = \text{Rs. } 924$

\therefore Required % = $\frac{924}{4200} \times 100$

= $\frac{924}{42} = 22\%$

=> Ans - (D)

Question 77

Segment AB is parallel to segment CD. AD intersects BC in E. If lengths of AE, BC and ED are 10 cm, 15 cm and 15 cm, what is the length of EC?

A 10 cm

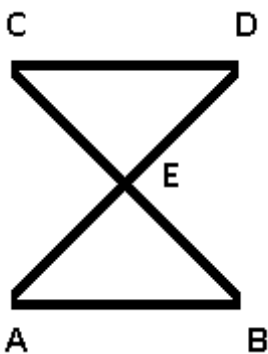
B 6 cm

C 5 cm

D 9 cm.

Answer: D

Explanation:



Given : AB is parallel to CD. AE = 10 cm , BC = 15 cm and ED = 15 cm

To find : EC = ?

Solution : Let $EC = x$ cm

In $\triangle BAE$ and $\triangle CDE$

$\Rightarrow \angle ABE = \angle DCE$ (Alternate interior angles)

$\Rightarrow \angle BAE = \angle CDE$ (Alternate interior angles)

$\Rightarrow \angle AEB = \angle CED$ (Vertically opposite angles)

Thus, $\triangle BAE \sim \triangle CDE$ (AAA criteria)

$$\therefore \frac{AE}{DE} = \frac{EB}{EC}$$

$$\Rightarrow \frac{10}{15} = \frac{(15-x)}{x}$$

$$\Rightarrow \frac{(15-x)}{x} = \frac{2}{3}$$

$$\Rightarrow 45 - 3x = 2x$$

$$\Rightarrow 2x + 3x = 5x = 45$$

$$\Rightarrow x = \frac{45}{5} = 9 \text{ cm}$$

\Rightarrow Ans - (D)

Question 78

A bank offers 5% compound interest per half year. A customer deposits Rs 8000 each on 1st January and 1st July of a year. At the end of the year, the amount he would have gained by way of interest is

A Rs 2440

- B** Rs 610
C Rs 1220
D Rs 305

Answer: C

Explanation:

The interest earned on 8000 from Jan to July will be $8000 \times 5 \times \frac{1}{100}$ (Since rate of interest is 5 % per 6 months)

$$= 80 \times 5 = 400$$

Hence, 8000 will amount to 8400. He adds another 8000 to this. So the net amount becomes $8400 + 8000 = 16,400$.

Now interest earned on this amount in a period of 6 months will be $16400 \times 5 \times \frac{1}{100} = 820$

So the final amount will be $16400 + 820 = 17220$

Total money he deposited = $8000 + 8000 = 16000$

Hence, amount earned via interest = $17220 - 16000 = 1220$

=> Ans - (C)

Question 79

If $16qxy = (2x + y)^2 - (2x - y)^2$, then what is the value of q?

- A** 0.5
B 0.25
C 4
D 2

Answer: A

Explanation:

Expression : $16qxy = (2x + y)^2 - (2x - y)^2$

$$\text{R.H.S.} = (2x + y)^2 - (2x - y)^2$$

$$= (4x^2 + y^2 + 4xy) - (4x^2 + y^2 - 4xy)$$

$$= (4x^2 - 4x^2) + (y^2 - y^2) + (4xy + 4xy)$$

$$= 8xy$$

$$\text{L.H.S.} = 16qxy$$

$$\Rightarrow 16q = 8$$

$$\Rightarrow q = \frac{8}{16} = 0.5$$

=> Ans - (A)

Question 80

The greatest four digit number that is divisible by both 15 and 35 is

A 9970

B 9965

C 9975

D 9980

Answer: C

Explanation:

L.C.M. of 15 and 35 = 105

Now, the greatest 4 digit number = 9999

By dividing 9999 with 105, => $9999 = 105 \times 95 + 24$

Quotient = 95 and remainder = 2

Thus, the greatest 4 digit number that can be divided by 105(15 and 35) = $9999 - 24 = 9975$

=> Ans - (C)

Question 81

Which of the following points lies on the line $5x + 4y = 2$?

A (2,3)

B (-2,-3)

C (-2,3)

D (2,-3)

Answer: C

Explanation:

Equation : $5x + 4y = 2$

(A) : (2,3)

=> $5(2) + 4(3) = 22 \neq 2$

(B) : (-2,-3)

=> $5(-2) + 4(-3) = -22 \neq 2$

$$(C) : (-2,3)$$

$$\Rightarrow 5(-2) + 4(3) = 2$$

$$(D) : (2,-3)$$

$$\Rightarrow 5(2) + 4(-3) = -2 \neq 2$$

\Rightarrow Ans - (C)

Question 82

The total surface area of a hemisphere is 1848 sq cm, what is its radius? (Take $\pi = 22/7$)

A 28 cms

B 7 cms

C 21 cms

D 14 cms

Answer: D

Explanation:

Let radius of hemisphere = r cm

$$\text{Total surface area of hemisphere} = 3\pi r^2 = 1848$$

$$\Rightarrow r^2 = \frac{1848}{3\pi}$$

$$\Rightarrow r^2 = 616 \times \frac{7}{22}$$

$$\Rightarrow r^2 = 28 \times 7 = 196$$

$$\Rightarrow r = \sqrt{196} = 14 \text{ cm}$$

\Rightarrow Ans - (D)

Question 83

Points P and Q lies on side AB and AC of triangle ABC respectively such that segment PQ is parallel to side BC. If the ratio of areas of triangle APQ and triangle ABC is 9:16, then what is the ratio of AP:PB?

A 3:4

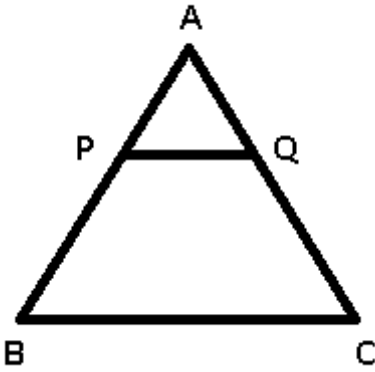
B 9:7

C 9:16

D 3:1

Answer: D

Explanation:



In $\triangle APQ$ and $\triangle ABC$

$\angle PAQ = \angle BAC$ (common)

$\angle APQ = \angle ABC$ (Alternate interior angles)

$\angle AQP = \angle ACB$ (Alternate interior angles)

$\Rightarrow \triangle APQ \sim \triangle ABC$

\Rightarrow Ratio of Area of $\triangle APQ$: Area of $\triangle ABC$ = Ratio of square of corresponding sides = $(AP)^2 : (AB)^2$

$$\Rightarrow \frac{9}{16} = \frac{(AP)^2}{(AB)^2}$$

$$\Rightarrow \frac{AP}{AB} = \sqrt{\frac{9}{16}} = \frac{3}{4}$$

Also, $PB = AB - AP$

$$\Rightarrow \frac{AP}{PB} = \frac{3}{4-3} = \frac{3}{1}$$

\Rightarrow Ans - (D)

Question 84

Which of the following equations has the sum of its roots as 7?

A $x^2 + 7x + 14 = 0$

B $x^2 - 7x + 10 = 0$

C $x^2 + 5x + 6 = 0$

D $x^2 + 5x - 6 = 0$

Answer: B

Explanation:

In a quadratic equation of the form : $ax^2 + bx + c = 0$, the sum of the roots is given by = $\frac{-b}{a}$

= Ratio of negative coefficient of x to coefficient of x^2

In equation (B) : $x^2 - 7x + 10 = 0$

$$\Rightarrow \text{Sum of roots} = \frac{-(-7)}{1} = 7$$

=> Ans - (B)

Question 85

$(\operatorname{cosec} A - \sin A)(\sec A - \cos A)(\tan A + \cot A)$ is equals to

A 2

B 0

C 1

D $1/2$

Answer: C

Explanation:

Expression : $(\operatorname{cosec} A - \sin A)(\sec A - \cos A)(\tan A + \cot A)$

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

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

Using, $(\sin^2 A + \cos^2 A = 1)$

$$= \frac{\cos^2 A}{\sin A} \times \frac{\sin^2 A}{\cos A} \times \frac{1}{\sin A \cos A}$$

$$= \frac{\sin^2 A \cos^2 A}{\sin^2 A \cos^2 A} = 1$$

=> Ans - (C)

Question 86

x and y are two numbers such that their mean proportion is 6 and third proportion is 48. What is the value of x and y ?

A 3 and 6

B 6 and 12

C 6 and 6

D 3 and 12

Answer: D

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 $y = 6$

$$\Rightarrow xy = (6)^2 = 36 \text{ -----(i)}$$

Third proportion = 48

$$\Rightarrow y^2 = x \times 48 \text{ -----(ii)}$$

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

$$\Rightarrow y^2 = \frac{36}{y} \times 48$$

$$\Rightarrow y^3 = (2)^3 \times (6)^3 = (12)^3$$

$$\Rightarrow y = (12)^{\frac{3}{3}} = 12$$

Substituting it in equation(i), $\Rightarrow x = \frac{36}{12} = 3$

\Rightarrow Ans - (D)

Question 87

The mean of marks secured by 55 students in division-A of class X is 55, 45 students of division-B is 51 and that of 40 students of division-C is 49. What is the mean of marks of the students of three divisions of Class X?

A 51.3

B 50.6

C 52

D 53.4

Answer: C

Explanation:

Total marks secured by 55 students in division A = $55 \times 55 = 3025$

Total marks secured by 45 students in division B = $45 \times 51 = 2295$

Total marks secured by 40 students in division C = $40 \times 49 = 1960$

$$\Rightarrow \text{Mean of marks of the students of three divisions of Class X} = \frac{(3025+2295+1960)}{(55+45+40)}$$

$$= \frac{7280}{140} = 52$$

\Rightarrow Ans - (C)

Question 88

What is the value of $\cos^2(A/2)$?

A $(1 - \cos A)/2$

B $(1 + \cos A)/2$

C $(1 + \sin A)/2$

D $(1 - \sin A)/2$

Answer: B

Explanation:

Using double angle formula, we know that $\cos(2\theta) = \cos^2\theta - \sin^2\theta$

$$\Rightarrow \cos(2\theta) = \cos^2\theta - (1 - \cos^2\theta)$$

$$\Rightarrow \cos(2\theta) = 2\cos^2\theta - 1$$

Replacing θ by $\frac{A}{2}$, we get :

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

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

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

\Rightarrow Ans - (B)

Question 89

One diagonal of a rhombus is half the other. If the length of the side of the rhombus is 10 cm, what is the area of the rhombus?

A $75\sqrt{3}$ sq cm

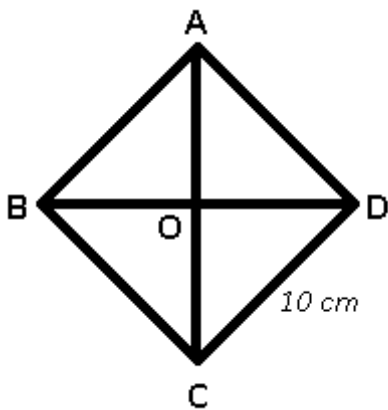
B $25\sqrt{3}$ sq cm

C 80 sq cm

D 160 sq cm

Answer: C

Explanation:



AC and BD are diagonals of the rhombus ABCD with side = 10 cm

One diagonal of a rhombus is half the other, let AC = $4x$ cm

$$\Rightarrow \text{BD} = 2x \text{ cm}$$

Diagonal of a rhombus perpendicularly bisect each other.

$\Rightarrow OD = x$ cm and $OC = 2x$ cm

In $\triangle OCD$, $\Rightarrow (OC)^2 + (OD)^2 = (CD)^2$

$\Rightarrow (2x)^2 + (x)^2 = (10)^2$

$\Rightarrow 4x^2 + x^2 = 100$

$\Rightarrow x^2 = \frac{100}{5} = 20$

\therefore Area of rhombus = $\frac{1}{2} \times$ Product of diagonals

= $\frac{1}{2} \times 4x \times 2x$

= $4x^2 = 4 \times 20 = 80\text{cm}^2$

\Rightarrow Ans - (C)

Question 90

P and Q can finish a work in 24 and 12 days respectively. In how many days can they complete 50% of the work if they work together?

A 8 days

B 2 days

C 4 days

D 16 days

Answer: C

Explanation:

Let total work to be done = 24 units

P can complete the work alone in 24 days

\Rightarrow P's efficiency = $\frac{24}{24} = 1$ unit/day

Q can complete the work alone in 12 days

\Rightarrow Q's efficiency = $\frac{24}{12} = 2$ units/day

(P + Q)'s 1 day's work = $2 + 1 = 3$ units/day

\Rightarrow 50% of the work = $\frac{50}{100} \times 24 = 12$ units

\therefore Time taken by them together to complete 50% of the work = $12 \div 3 = 4$ days

\Rightarrow Ans - (C)

Question 91

A rice trader buys 16 quintals of rice for Rs 1,280. 18% rice is lost in transportation. At what rate should he sell to earn 23% profit?

A Rs 53.33 per quintal

- B Rs 98.4 per quintal
- C Rs 122.5 per quintal
- D Rs 120 per quintal

Answer: D

Explanation:

Cost price = Rs. 1280 for 16 quintals

$$\text{Quantity of rice with the trader after transportation lost} = \frac{100-18}{100} \times 16 = \frac{82}{25} \times 4$$

$$= 13.12 \text{ quintals}$$

$$\text{To have 23\% profit, total selling price of the trader should be} = \frac{123}{100} \times 1280$$

$$= \text{Rs. } 1574.4$$

$$\therefore \text{Selling price per quintal} = \frac{1574.4}{13.12} = \text{Rs. } 120$$

=> Ans - (D)

Question 92

To travel 780 km, an Express train takes 8 hours more than Rajdhani. If however, the speed of the Express train is doubled, it takes 6 hours less than Rajdhani. The speed (in km/hr) of Rajdhani is

- A 39 km/hr
- B 55.7 km/hr
- C 22.3 km/hr
- D 72.4 km/hr

Answer: A

Explanation:

Let speed of Rajdhani train = x km/hr and Express train = y km/hr

Using, time = distance/speed

$$\text{Acc. to ques, } \Rightarrow \frac{780}{y} - \frac{780}{x} = 8$$

$$\Rightarrow \frac{1}{y} - \frac{1}{x} = \frac{8}{780} = \frac{2}{195} \text{ -----(i)}$$

If speed of express train is doubled = $2y$ km/hr

$$\Rightarrow \frac{780}{x} - \frac{780}{2y} = 6$$

$$\Rightarrow \frac{1}{x} - \frac{1}{2y} = \frac{6}{780} = \frac{1}{130} \text{ -----(ii)}$$

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

$$\Rightarrow \frac{1}{y} - \frac{1}{2y} = \frac{2}{195} + \frac{1}{130}$$

$$\Rightarrow \frac{1}{2y} = \frac{4+3}{390} = \frac{7}{390}$$

$$\Rightarrow y = \frac{195}{7} \text{ km/hr}$$

$$\therefore \text{Speed of Rajdhani} = \frac{1}{x} = \frac{7}{195} - \frac{2}{195}$$

$$\Rightarrow \frac{1}{x} = \frac{5}{195} = \frac{1}{39}$$

$$\Rightarrow x = 39 \text{ km/hr}$$

\Rightarrow Ans - (A)

Question 93

$\cot^{-1} 11\pi/6$ is equals to

A $-\sqrt{3}$

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

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

D $\sqrt{3}$

Answer: D

Explanation:

Expression : $\cot^{-1} 11\pi/6$

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

$$= -\cot\left(\frac{11\pi}{6}\right)$$

$$= -\cot\left(2\pi - \frac{\pi}{6}\right)$$

$$= -[-\cot\left(\frac{\pi}{6}\right)] = \cot\left(\frac{\pi}{6}\right)$$

$$= \sqrt{3}$$

\Rightarrow Ans - (D)

Question 94

If $5x + 2 > 3x + 1$ and $4(x - 4) - 2 \leq 3x - 1$, then x can take which of the following values?

A 16

B 18

C -6

D -16

Answer: A

Explanation:

$$\text{Expression 1 : } 5x + 2 > 3x + 1$$

$$\Rightarrow 5x - 3x > 1 - 2$$

$$\Rightarrow 2x > -1$$

$$\Rightarrow x > \frac{-1}{2} \text{ -----(i)}$$

$$\text{Expression 2 : } 4(x - 4) - 2 \leq 3x - 1$$

$$\Rightarrow 4x - 16 - 2 \leq 3x - 1$$

$$\Rightarrow 4x - 3x \leq -1 + 18$$

$$\Rightarrow x \leq 17 \text{ -----(ii)}$$

Combining inequalities (i) and (ii), we get : $\frac{-1}{2} < x \leq 17$

The only value that x can take among the options = 16

\Rightarrow Ans - (A)

Question 95

The value of x for which the expressions $5x + 3$ and $7x - 3$ become equal is

A 3

B -1

C -4

D 2

Answer: A

Explanation:

Expressions : $5x + 3$ and $7x - 3$

$$\Rightarrow 5x + 3 = 7x - 3$$

$$\Rightarrow 7x - 5x = 3 + 3$$

$$\Rightarrow 2x = 6$$

$$\Rightarrow x = \frac{6}{2} = 3$$

\Rightarrow Ans - (A)

Question 96

A student multiplied a number by $\frac{5}{8}$ instead of $\frac{8}{5}$. What is the percentage error in the calculation?

A 60.94 percent

- B 156 percent
- C 30.47 percent
- D 78 percent

Answer: A

Explanation:

Let the number be 40

When the student multiplied it by $\frac{5}{8}$, \Rightarrow original result = $\frac{5}{8} \times 40 = 25$

When the student multiply it by $\frac{8}{5}$, \Rightarrow New result = $\frac{8}{5} \times 40 = 64$

\Rightarrow Percentage error in calculation = $\frac{(64-25)}{64} \times 100$

= $\frac{3900}{64} = 60.937 \approx 60.94\%$

\Rightarrow Ans - (A)

Question 97

Refer the below data table and answer the following Question.

	Quantity of Stock	Average Cost (Rs)
Mobile Phones	59	15000
Cameras	72	16000
TVs	77	36000
Refrigerators	100	28000
ACs	98	23000

What is the value of the total stock (in lakh rupees)?

- A 986.3
- B 118
- C 98.63
- D 406

Answer: C

Explanation:

Total cost of mobiles = $59 \times 15000 = \text{Rs. } 8,85,000$

Total cost of Cameras = $72 \times 16000 = \text{Rs. } 11,52,000$

Total cost of TVs = $77 \times 36000 = \text{Rs. } 27,72,000$

Total cost of Refrigerator = $100 \times 28000 = \text{Rs. } 28,00,000$

Total cost of AC = $98 \times 23000 = \text{Rs. } 22,54,000$

\therefore Total cost = $8,85,000 + 11,52,000 + 27,72,000 + 28,00,000 + 22,54,000 = \text{Rs. } 98,63,000$

Total cost in lakhs = Rs 98.63 lakhs

=> Ans - (C)

Question 98

Refer the below data table and answer the following Question.

Year	Company's % Profit
2011	1.1
2012	1.1
2013	0.7
2014	0.7
2015	0.7

If the imports in 2012 was Rs. 900 crores and the total exports in the years 2012 and 2013 together was Rs. 2800 crores, then the imports in 2013 was?

A 1387

B 1982

C 818

D 2831

Answer: A

Explanation:

Imports in 2012 = Rs. 900 crores

Let Exports in 2012 = Rs. y crores

Ratio of imports and exports in 2012 = 1.1

$$\Rightarrow \frac{900}{y} = 1.1$$

$$\Rightarrow y = \frac{900}{1.1} = 818.18$$

Total exports In the years 2012 and 2013 together = Rs. 2800 crores

=> Exports in 2013 = Rs. (2800 - 818.18) crores = Rs. 1981.82 crores

Let imports in 2013 = Rs. x crores

$$\text{Ratio of imports and exports in 2013} = \frac{x}{1981.82} = 0.7$$

$$\Rightarrow x = 1981.82 \times 0.7 = 1387.274 \approx 1387$$

∴ Imports in 2013 was Rs. 1387 crores

=> Ans - (A)

Question 99

Refer the below data table and answer the following Question.

Measured on Birthday	Height of the child (in cms)
4	100
5	105
6	115
7	120
8	125
9	130
10	135
11	145
12	150
13	155
14	160
15	170
16	180

What was the increase in the height of the child from the 9th Birthday to the 15th Birthday?

- A 45 cms
- B 40 cms
- C 35 cms
- D 50 cms

Answer: B

Explanation:

Height on 9th birthday = 130 cm

Height on 15th birthday = 170 cm

Increase in height = $170 - 130 = 40$ cm

=> Ans - (B)

Question 100

Refer the below data table and answer the following Question.

Deep Sleep	20
Dreaming	20
Light Sleep	5
Extremely Light Sleep	15
Awake	40

Between 10pm to 6am, a fitness band records the following data. How long was the user in Deep Sleep or in Extremely light sleep ?

A 2.3 hours

B 2.8 hours

C 1.3 hours

D 3.3 hours

Answer: B

Explanation:

Total time between 10 pm to 6 am = 8 hours

% time spent in deep sleep and Extremely light sleep = 20 + 15 = 35%

=> Time spent in deep and extremely light sleep = $\frac{35}{100} \times 8$

= $\frac{7 \times 2}{5} = 2.8$ hours

=> Ans - (B)