

# SSC CHSL 8 Feb 2017 Morning Shift

## Reasoning

### Instructions

For the following questions answer them individually

### Question 1

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

Mughals : History :: Rivers : ?

- A Geography
- B Physics
- C Psychology
- D Biology

Answer: A

### Explanation:

First is the part of subject and second is the subject. Mughals are related to History similarly rivers are related to Geography.

=> Ans - (A)

### Question 2

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

ADH : ILP :: GJN : ?

- A OVR
- B ORV
- C PVR
- D PWR

Answer: B

### Explanation:

Expression = ADH : ILP :: GJN : ?

The pattern followed is :

A	D	H
(+8)	(+8)	(+8)
I	L	P

Similarly, GJN : ORV

G	J	N
(+8)	(+8)	(+8)
O	R	V

=> Ans - (B)

### Question 3

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

WD : TF :: TG : ?

A QR

B QI

C IQ

D IP

**Answer: B**

### Explanation:

W(23) - 3 = T(20) and D(4) + 2 = F(6)

Using same logic, T(20) - 3 = Q and G(7) + 2 = I

Hence, option B is the right answer.

### Question 4

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

9 : 27 :: 64 : ?

A 225

B 216

C 512

D 324

**Answer: C**

### Explanation:

Expression = 9 : 27 :: 64 : ?

The pattern followed is =  $x^2 : x^3$

Eg :-  $3^2 : 3^3 = 9 : 27$

Similarly,  $64 = 8^2$

=>  $8^3 = 512$

=> Ans - (C)

### Question 5

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

A Igloo

B Den

C Stables

D Rock

**Answer: D**

### Explanation:

Except rocks others are used for living, hence rock is the odd one out.

=> Ans - (D)

### Question 6

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

A CUD

B SIP

C SET

D NTR

**Answer: D**

### Explanation:

In CUD, SIP and SET there is a vowel between two consonants.

This is not followed in NTR.

Hence, option D is the right answer.

### Question 7

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

A 132

B 145

C 187

D 144

**Answer:** D

**Explanation:**

$144 = (12)^2$ , all other numbers are not perfect square numbers, hence 144 is the odd one out.

=> Ans - (D)

**Question 8**

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

A 361

B 289

C 225

D 216

**Answer:** D

**Explanation:**

$$361 = (19)^2$$

$$289 = (17)^2$$

$$225 = (15)^2$$

$$216 = (6)^3$$

Thus, 216 is the odd one out.

=> Ans - (D)

**Question 9**

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

Ace, King, Queen, ?

A Jack

B Club

C Heart

D Diamond

**Answer: A**

**Explanation:**

Cards in decreasing order are given.

= Ace -> King -> Queen -> Jack

=> Ans - (A)

**Question 10**

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

**BB, DZ, GW, KS, ?**

**A** IK

**B** IG

**C** PN

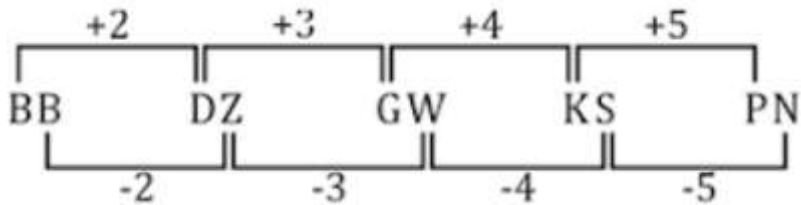
**D** PS

**Answer: C**

**Explanation:**

Expression : BB, DZ, GW, KS, ?

The pattern followed is :



Thus, missing term = **PN**

=> Ans - (C)

**Question 11**

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

**HI, MN, RS, ?**

**A** XY

**B** WX

**C** WY

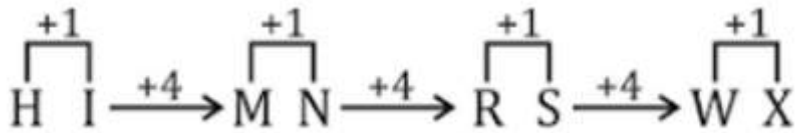
D WE

Answer: B

**Explanation:**

Expression : HI, MN, RS, ?

The pattern followed is :



Thus, missing term = WX

=> Ans - (B)

**Question 12**

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

80, 130, 190, 260, ?

A 350

B 340

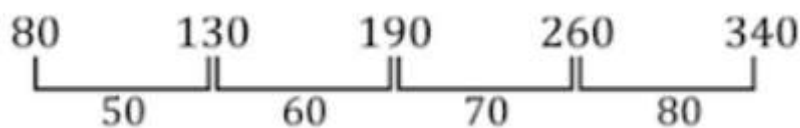
C 300

D 320

Answer: B

**Explanation:**

The pattern followed is :



Thus, missing number = 340

=> Ans - (B)

**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.

**Statement:**

(I) Kids rejoice with toys and toys give them new opportunities to think in various ways.

(II) Toys are non-living things that create a virtual world around kids to think and perceive in various ways.

**Conclusions:**

(I) If children don't play with toys some part of the personality is underdeveloped. (II) Toys are mandatory and undetachable part of their personality.

- A Only conclusion II follows
- B Conclusion I and II both follow
- C Neither I nor II follow
- D Only conclusion I follows

**Answer: C**

#### Question 14

Five students P, Q, R, S and T are sitting on a bench. Q is to the left of P and right of T. S is at the extreme right end and R is to the left of S. Who is sitting third from the left?

- A P
- B Q
- C R
- D T

**Answer: A**

#### Explanation:

S is at the extreme right end and R is to the left of S.

=> R sits second from right end.

Q is to the left of P and right of T.

=> T sits at extreme left end.

Thus, arrangement :

T	Q	P	R	S
---	---	---	---	---

∴ P is sitting third from the left.

=> Ans - (A)

#### Question 15

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

- i. Temerity
- ii. Temporary
- iii. Tempered
- iv. Temperature

A i, iv, iii, ii

B iii, ii, iv, i

C i, ii, iii, iv

D iv, iii, i, ii

**Answer: A**

**Explanation:**

As per the order of dictionary :

= Temerity -> Temperature -> Tempered -> Temporary

≡ i, iv, iii, ii

=> Ans - (A)

**Question 16**

In a certain code language, "DONKEY" is written as "YEKNOD". How is "RAINBOW" written in that code language?

A WOBNAIR

B WOBNIAR

C WONBAIR

D WOBNRAI

**Answer: B**

**Explanation:**

"DONKEY" is written as "YEKNOD"

The pattern followed is that the word is inversed, i.e. first letter comes at the end, second at second last and so on.

Similarly, for RAINBOW : **WOBNIAR**

=> Ans - (B)

**Question 17**

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

3	7	21
5	6	30
8	1	?



A 9

B 8

C 16

D 12

**Answer: B**

**Explanation:**

The pattern followed is that the number in the last row is obtained by multiplying the other two.

$$\text{Eg :- } 3 \times 7 = 21$$

$$5 \times 6 = 30$$

$$\text{Similarly, } 8 \times 1 = 8$$

=> Ans - (B)

**Question 18**

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

$$96 \text{ L } 12 \text{ S } 7 \text{ V } 49 \text{ M } 10 = ?$$

A 18

B 20

C 21

D 17

**Answer: D**

**Explanation:**

Expression :  $96 \text{ L } 12 \text{ S } 7 \text{ V } 49 \text{ M } 10 = ?$

$$\equiv 96 \div 12 \times 7 - 49 + 10$$

$$= (8 \times 7) - 39$$

$$= 56 - 39 = 17$$

=> Ans - (D)

**Question 19**

In the following question, which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?

A\_C\_E\_B\_DE

A CADB

B DBAC

C BDAC

D BADC

**Answer: C**

**Explanation:**

The pattern followed is that in groups of 5, the term 'ABCDE' is repeated.

= ABCDE ABCDE

=> Ans - (C)

**Question 20**

Amar moved 20km towards east in car from his home to reach hospital. From there he turned left and moved 30km and again moves 20km right to reach his school. How far is his school from his home?

A 45 km

B 50 km

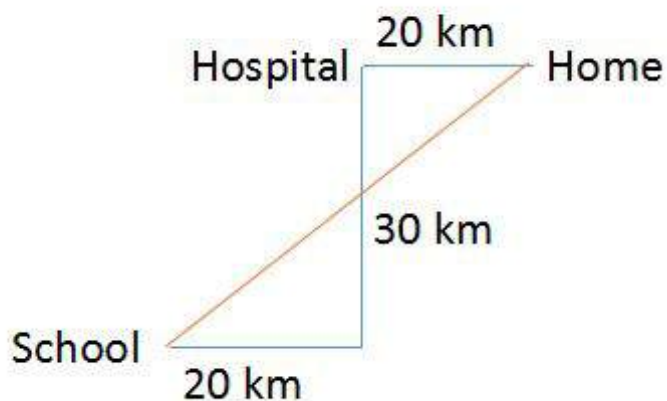
C 47 km

D 55 km

**Answer: B**

**Explanation:**

Let us represent the given statements diagrammatically.



Applying Pythagoras theorem, we get the distance between home and school to be  $\sqrt{30^2 + 40^2}$   
 $= \sqrt{2500}$   
 $= 50km$

Therefore, option B is the right answer.

**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, 'A' can be represented by 02, 13 etc. and 'L' can be represented by 85, 95, etc. Similarly, you have to identify the set for the word 'INSERT'.

**Matrix - I**

	0	1	2	3	4
0	R	S	A	Y	Y
1	R	I	S	A	Y
2	B	R	I	S	A
3	B	C	R	I	S
4	B	C	U	U	I

**Matrix - II**

	5	6	7	8	9
5	N	T	P	X	X
6	E	N	T	P	Z
7	L	E	N	T	V
8	L	F	E	N	V
9	L	F	G	E	G

- A 78, 43, 86, 01, 77, 89
- B 89, 42, 97, 01, 66, 23
- C 56, 31, 76, 23, 66, 23
- D 11, 66, 23, 87, 10, 78

**Answer:** D

**Explanation:**

- (A) : 78, 43, 86, 01, 77, 89 = TUFSNV
- (B) : 89, 42, 97, 01, 66, 23 = VUGSNS
- (C) : 56, 31, 76, 23, 66, 23 = TCESNE
- (D) : 11, 66, 23, 87, 10, 78 = **INSERT**

=> Ans - (D)

**Question 22**

Introducing a boy, Amar said, "He is the son of my maternal grandfather's son." How is that boy related to Amar?

- A Maternal uncle
- B Nephew
- C Brother

D Cousin

Answer: D

**Explanation:**

Amar's maternal grandfather's son = Amar's uncle

Now, the boy is son of Amar's uncle,

=> Amar and the boy are cousins.

=> Ans - (D)

**Question 23**

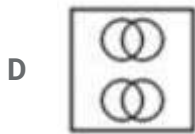
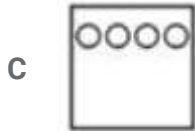
If a mirror is placed on the line MN, then which of the answer figures is the right image of the given figure?



Answer: C

**Question 24**

Identify the diagram that best represents the relationship among the given classes. Asia, America, India, Delhi



Answer: B

**Explanation:**

Delhi is in India and India is in Asia, while America is a different continent.

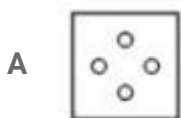
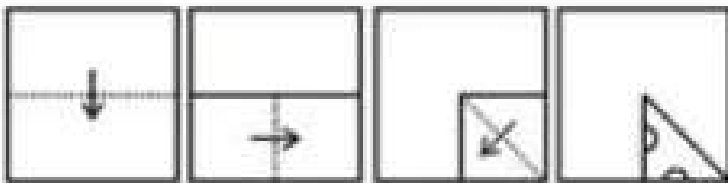
Thus, the venn diagram that best describes above relationship is :

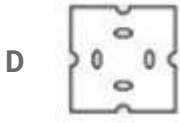


=> Ans - (B)

**Question 25**

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





Answer: D

## General Awareness

### Instructions

For the following questions answer them individually

### Question 26

\_\_\_\_\_ comprises the archaeological remains of a monastic and scholastic institution.

- A Nalanda
- B Rani ki vav
- C Hill Forts of Rajasthan
- D Fatehpur Sikri

Answer: A

### Question 27

Which of these Indians has not won a Nobel Award?

- A Rabindranath Tagore
- B C. V. Raman
- C Satyajit Ray
- D Amartya Sen

Answer: C

**Question 28**

**Elapidae Naja is the scientific name of \_\_\_\_\_ .**

- A Cobra
- B Elephant
- C Eagle
- D Owl

**Answer: A**

**Question 29**

**What is the chemical formula of aluminium nitride?**

- A AlN
- B Al<sub>2</sub>N
- C Al<sub>2</sub>N<sub>3</sub>
- D AlN<sub>2</sub>

**Answer: A**

**Question 30**

**Atomic number of which of the following elements is greater than that of Chlorine**

- A Potassium
- B Sulphur
- C Aluminium
- D Phosphorus

**Answer: A**

**Question 31**

**Commonly used abbreviation ISP in computer science stands for?**

- A Internet Service Provider

- B Intranet Service Provider
- C Internet Systems Provider
- D Intranet Systems Provider

**Answer: A**

**Question 32**

**Ghoomar is a folk dance of \_\_\_\_\_ .**

- A Mizoram
- B Puducherry
- C Gujarat
- D Rajasthan

**Answer: D**

**Question 33**

**If one more baker is hired the output of a bakery will increase from 1250 breads to 1400 breads per day, but then the bakery will have to reduce the price of the bread from Rs 15 to Rs 14 per unit to sell the additional output, the marginal revenue product of the last baker is .**

- A Rs 850
- B Rs 150
- C Rs 1960
- D Rs 1875

**Answer: A**

**Question 34**

**If a perfectly competitive firm can increase its profits by increasing its output, then that firm's product's .**

- A price exceeds its marginal costs
- B price exceeds its average total costs
- C average variable costs exceed its average total costs



**D** fixed costs are zero

**Answer: A**

**Question 35**

**Uraninite is an ore/mineral of \_\_\_\_\_**

**A** Zinc

**B** Uranium

**C** Titanium

**D** Aluminium

**Answer: B**

**Question 36**

**Name India's oldest credit information bureau.**

**A** RBI

**B** CIBIL

**C** NABARD

**D** UTI

**Answer: B**

**Question 37**

**A volcano that is not expected to erupt again is called\_\_\_\_\_**

**A** Cinder cone

**B** Moraine

**C** Lava

**D** Extinct volcano

**Answer: D**

**Question 38**

**Paris is the Capital City of \_\_\_\_\_ .**

- A France
- B Norway
- C Canada
- D Greece

**Answer: A**

**Question 39**

**Chandragupta Maurya was born in Pataliputra, which is now in .**

- A Chattisgarh
- B Madhya Pradesh
- C Uttar Pradesh
- D Bihar

**Answer: D**

**Question 40**

**Battle of Kanauj in 1540 was fought between Sher Shah and\_\_\_\_\_**

- A Babur
- B Humayun
- C Akbar
- D Aurangzeb

**Answer: B**

**Question 41**

**Magic Marker was invented by\_\_\_\_\_**

- A Adolphe Sax

- B Albert Bruce Sabin
- C Sidney Rosenthal
- D Hyman George Rickover

**Answer: C**

**Question 42**

**Upward force on a floating body is called\_\_\_\_\_**

- A jerk
- B buoyancy
- C Archimedal force
- D Anti-gravity

**Answer: B**

**Question 43**

**Women have shrill voice because of \_\_\_\_\_**

- A Low frequency
- B High frequency
- C Shrill vocals
- D Strong epiglottis

**Answer: B**

**Question 44**

**Who was the first female Governor of India?**

- A Kamala Nehru
- B Madam Bikaji Kama
- C Sarojini Naidu
- D Vijaya Lakshmi Pandit

**Answer: C**

**Question 45**

**The number of parliamentary seats (Lok Sabha) of Kerala is .**

- A** 2
- B** 13
- C** 20
- D** 25

**Answer: C**

**Question 46**

**In which Sport in Olympics, India has won maximum Gold Medals?**

- A** Shooting
- B** Wrestling
- C** Hockey
- D** Athletics

**Answer: C**

**Question 47**

**The upper part of the heterosphere is composed almost completely of which gas?**

- A** Ozone
- B** Nitrogen
- C** Oxygen
- D** Hydrogen

**Answer: D**

**Question 48**

**Who is the author of "My Father is a Hero"?**

- A Novoneel Chakraborty
- B Neelima Dalmia Adhar
- C Nishant Kaushik
- D A.P.J. Abdul Kalam

**Answer: C**

**Question 49**

**Which disease is caused due to deficiency of Iron?**

- A Beriberi
- B Tetany
- C Kwashiorkor
- D Anaemia

**Answer: D**

**Question 50**

**\_\_\_\_\_ is a leaf where the leaflets are arranged along the middle vein.**

- A Pinnately compound leaf
- B Palmately compound leaf
- C Compound leaf
- D Simple leaf

**Answer: B**

## **Mathematics**

**Instructions**

For the following questions answer them individually

### Question 51

When a number is increased by 24, it becomes 110% of itself. What is the number?

A 288

B 360

C 216

D 240

**Answer: D**

#### **Explanation:**

Let the number be  $100x$

According to ques,  $\Rightarrow 100x + 24 = \frac{110}{100} \times 100x$

$$\Rightarrow 100x + 24 = 110x$$

$$\Rightarrow 110x - 100x = 24$$

$$\Rightarrow x = \frac{24}{10} = 2.4$$

$$\therefore \text{Number} = 100 \times 2.4 = 240$$

$\Rightarrow$  Ans - (D)

### Question 52

Reduce 3596 / 4292 to lowest terms.

A 29/37

B 17/43

C 31/37

D 19/23

**Answer: C**

#### **Explanation:**

Expression :  $\frac{3596}{4292}$

Dividing both numerator and denominator by 4, =  $\frac{899}{1073}$

Similarly, dividing by 29, we get :

$$= \frac{31}{37}$$

$\Rightarrow$  Ans - (C)

### Question 53

A does 60% of a work in 15 days. He then calls B, and they together finish the remaining work in 5 days. How long B alone would take to do the whole work?

- A 25 days
- B 20 days
- C 80 days
- D 24 days

**Answer:** A

#### Explanation:

Let total work to be done = 100 units

Work done by A in 15 days =  $\frac{60}{100} \times 100 = 60$  units

A's efficiency =  $\frac{60}{15} = 4$  units/day

Remaining work =  $100 - 60 = 40$  units

Let B's efficiency =  $x$  units/day

Now, A and B complete remaining work in 5 days

$$\Rightarrow (4 + x) \times 5 = 40$$

$$\Rightarrow 4 + x = \frac{40}{5} = 8$$

$$\Rightarrow x = 8 - 4 = 4$$

$\therefore$  Time taken by B to complete the whole work alone =  $\frac{100}{4} = 25$  days

$\Rightarrow$  Ans - (A)

### Question 54

If  $\cot 60^\circ + \operatorname{cosec} 60^\circ = x$ , then the value of  $x$  is

A  $\frac{(1-2\sqrt{2})}{\sqrt{2}}$

B  $\frac{(\sqrt{3}-4)}{2\sqrt{3}}$

C 1

D  $\sqrt{3}$

**Answer:** D

#### Explanation:

Expression :  $\cot 60^\circ + \operatorname{cosec} 60^\circ = x$

$$= \frac{1}{\sqrt{3}} + \frac{2}{\sqrt{3}}$$

$$= \frac{1+2}{\sqrt{3}} = \frac{3}{\sqrt{3}}$$

$$= \sqrt{3}$$

=> Ans - (D)

### Question 55

Two cars travel from city A to city B at a speed of 42 and 60 km/hr respectively. If one car takes 2 hours lesser time than the other car for the journey, then the distance between City A and City B is:

- A 336 km
- B 280 km
- C 420 km
- D 224 km

**Answer: B**

### Explanation:

Let the distance between City A and City B =  $d$  km

Speed of first car = 42 km/hr and speed of second car = 60 km/hr

Let time taken by first car =  $t$  hrs and time taken by second car =  $(t - 2)$  hrs

Using, speed = distance/time for first car :

$$\Rightarrow \frac{d}{t} = 42$$

$$\Rightarrow d = 42t \text{ -----(i)}$$

$$\text{For second car, } \Rightarrow \frac{d}{t-2} = 60$$

Substituting value of  $d$  from equation (i), we get :

$$\Rightarrow 42t = 60t - 120$$

$$\Rightarrow 60t - 42t = 18t = 120$$

$$\Rightarrow t = \frac{120}{18} = \frac{20}{3} \text{ hrs}$$

$$\text{From equation (i), } \Rightarrow d = 42 \times \frac{20}{3} = 280 \text{ km}$$

=> Ans - (B)

### Question 56

If  $\sqrt{\frac{(1-\cos A)}{2}} = x$ , then the value of  $x$  is



A  $\cos(A/2)$

B  $\tan(A/2)$

C  $\sin(A/2)$

D  $\cot(A/2)$

**Answer: C**

**Explanation:**

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

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

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

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

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

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

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

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

$\Rightarrow$  Ans - (C)

**Question 57**

**If  $1 + \sec A = x$ , then the value of  $x$  is**

A  $\sin A \tan A / (1 + \cos A)$

B  $\sqrt{\frac{\sin A \tan A}{(1 - \cos A)}}$

C  $\sin A \tan A / (1 - \cos A)$

D  $\sqrt{\frac{\sin A \tan A}{(1 + \cos A)}}$

**Answer: C**

**Explanation:**

Expression :  $1 + \sec A = x$

$$= 1 + \frac{1}{\cos A} = \frac{1 + \cos A}{\cos A}$$

Multiplying both numerator and denominator by  $(1 - \cos A)$

$$= \frac{1 + \cos A}{\cos A} \times \frac{(1 - \cos A)}{(1 - \cos A)}$$

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

$$= \sin A \times \frac{\sin A}{\cos A} \times \frac{1}{1 - \cos A}$$

$$= \frac{\sin A \tan A}{1 - \cos A}$$

=> Ans - (C)

### Question 58

A cone of radius 7 cm and height 12 cm is completely filled with water. This water is emptied into an empty cylindrical vessel of radius 3.5 cm. What will be the height of water in this vessel?

A 16 cm

B 32 cm

C 5.33 cm

D 8 cm

**Answer:** A

### Explanation:

Let height of cylinder =  $h$  cm and radius,  $r = 3.5$  cm

Height of cone,  $H = 12$  cm and Radius,  $R = 7$  cm

According to ques, Volume of cylinder = Volume of cone

$$\Rightarrow \pi r^2 h = \frac{1}{3} \pi R^2 H$$

$$\Rightarrow (3.5)^2 \times h = \frac{1}{3} \times (7)^2 \times 12$$

$$\Rightarrow h = \frac{49 \times 4}{12.25}$$

$$\Rightarrow h = 4 \times 4 = 16 \text{ cm}$$

=> Ans - (A)

### Question 59

What is the length of the side of an equilateral triangle, if its area is  $64\sqrt{3}$  sq cm?

A 8 cm

B 16 cm

C  $16\sqrt{3}$  cm

D  $8\sqrt{3}$  cm

**Answer:** B

### Explanation:

Let the side of equilateral triangle =  $a$  cm

$$\text{Area of equilateral triangle} = \frac{\sqrt{3}}{4}a^2 = 64\sqrt{3}$$

$$\Rightarrow \frac{a^2}{4} = 64$$

$$\Rightarrow a^2 = 64 \times 4 = 256$$

$$\Rightarrow a = \sqrt{256} = 16 \text{ cm}$$

$\Rightarrow$  Ans - (B)

### Question 60

**A vendor buys pens at the rate of 4 for Rs 5 and sells at the rate of 4 for Rs 3. What will be the result?**

- A 40 percent gain
- B 66.6 percent loss
- C 66.66 percent gain
- D 40 percent loss

**Answer:** D

### Explanation:

The vendor buys 4 pens for Rs. 5

$$\Rightarrow \text{Cost price of 1 pen} = \frac{5}{4} = \text{Rs } 1.25$$

He sells 4 pens for Rs. 3

$$\Rightarrow \text{Selling price of 1 pen} = \frac{3}{4} = \text{Rs } 0.75$$

$\therefore$  Selling price is less than Cost price, the vendor suffers a loss

$$\Rightarrow \text{Loss \%} = \frac{(1.25 - 0.75)}{1.25} \times 100$$

$$= \frac{2}{5} \times 100 = 40\%$$

$\Rightarrow$  Ans - (D)

### Question 61

**Simple interest on a certain sum of money for 3 years at 18% per annum is half the compound interest on Rs. 9000 for 2 years at 10% per annum. The sum placed on simple interest is:**

- A Rs 3500
- B Rs 875
- C Rs 1750

D Rs 1400

Answer: C

**Explanation:**

Sum for compound interest = Rs. 9000

Rate of interest = 10% and time period = 2 years

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

$$= 9000\left[\left(1 + \frac{10}{100}\right)^2 - 1\right]$$

$$= 9000\left[\left(\frac{11}{10}\right)^2 - 1\right] = 9000\left(\frac{121-100}{100}\right)$$

$$= 90 \times 21 = \text{Rs. } 1890$$

$$\Rightarrow \text{Simple interest} = \frac{1890}{2} = \text{Rs. } 945$$

Let sum under simple interest = Rs.  $x$

Rate of interest = 18% and time period = 3 years

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

$$= \frac{x \times 18 \times 3}{100} = 945$$

$$\Rightarrow x = \frac{945 \times 100}{54} = 100 \times 17.5 = \text{Rs. } 1750$$

$\Rightarrow$  Ans - (C)

**Question 62**

Find  $k$ , if the line  $4x + y = 1$  is perpendicular to the line  $5x + ky = 2$ ?

A 20

B -20

C 4

D -4

Answer: B

**Explanation:**

Slope of line having equation :  $ax + by + c = 0$  is  $\frac{-a}{b}$

Thus, slope of line  $4x + y = 1$  is  $\frac{-4}{1} = -4$

Similarly, slope of line  $5x + ky = 2$  is  $\frac{-5}{k}$

Also, product of slopes of two perpendicular lines is -1

$$\Rightarrow \frac{-5}{k} \times -4 = -1$$

$$\Rightarrow \frac{20}{k} = -1$$

$$\Rightarrow k = -20$$

=> Ans - (B)

### Question 63

The mean of marks secured by 55 students in division A of class X is 58, 45 students of division B is 54 and that of 75 students of division C is 52. Find the mean of marks of the students of three divisions of Class X.

A 53.7

B 54.4

C 53

D 55.8

**Answer: B**

#### Explanation:

Total marks secured by 55 students in division A =  $55 \times 58 = 3190$

Total marks secured by 45 students in division B =  $45 \times 54 = 2430$

Total marks secured by 75 students in division C =  $75 \times 52 = 3900$

=> Mean of marks of the students of three divisions of Class X =  $\frac{(3190+2430+3900)}{(55+45+75)}$

$$= \frac{9520}{175} = 54.4$$

=> Ans - (B)

### Question 64

Find length of the arc whose central angle is  $90^\circ$  and radius of the circle is 3.5 cm?

A 11 cm

B 5.5 cm

C 16.5 cm

D 22 cm

**Answer: B**

#### Explanation:

Central angle =  $\theta = 90^\circ$  and radius =  $r = 3.5$  cm

$$\text{Length of arc} = \frac{\theta}{360} \times 2\pi r$$

$$= \frac{90}{360} \times 2 \times \frac{22}{7} \times 3.5$$

$$= \frac{1}{4} \times 22 = 5.5 \text{ cm}$$

=> Ans - (B)

### Question 65

The ratio of present ages of Ratnabali and Shaukat is 8:5. After 22 years the ratio of their ages will be 10:9. At present, what is Ratnabali's age?

- A 5
- B 14
- C 81
- D 8

**Answer: D**

### Explanation:

Let Ratnabali's present age =  $8x$  years and Shaukat's present age =  $5x$  years

According to ques, =>  $\frac{8x+22}{5x+22} = \frac{10}{9}$

$$\Rightarrow 72x + 208 = 50x + 220$$

$$\Rightarrow 72x - 50x = 220 - 208$$

$$\Rightarrow 22x = 22$$

$$\Rightarrow x = \frac{22}{22} = 1$$

$\therefore$  Ratnabali's age =  $8 \times 1 = 8$  years

=> Ans - (D)

### Question 66

The area of an equilateral triangle is  $9\sqrt{3}$  sq cm, find height of the triangle?

- A 6 cm
- B  $6\sqrt{3}$  cm
- C  $3\sqrt{3}$  cm
- D 9 cm

**Answer: C**

### Explanation:

Let the side of equilateral triangle =  $a$  cm

Area of equilateral triangle =  $\frac{\sqrt{3}}{4}a^2 = 9\sqrt{3}$

$$\Rightarrow a^2 = 9 \times 4 = 36$$

$$\Rightarrow a = \sqrt{36} = 6 \text{ cm}$$

The height  $h$  of an equilateral triangle bisect the opposite side.

$$\Rightarrow (h)^2 = (6)^2 - (3)^2$$

$$\Rightarrow (h)^2 = 36 - 9 = 27$$

$$\Rightarrow h = \sqrt{27} = 3\sqrt{3} \text{ cm}$$

$\Rightarrow$  Ans - (C)

### Question 67

**Ticket for an adult is Rs 2200 and a child is Rs 990. One child goes free with two adults. If a group has 23 adults and 11 children, what is the discount the group gets?**

A 17.71 percent

B 32.30 percent

C 26.47 percent

D 25.77 percent

**Answer: A**

### Explanation:

Cost price of adult ticket = Rs. 2200 and child ticket = Rs. 990

For 23 adults and 11 children, total cost =  $(23 \times 2200) + (11 \times 990)$

$$= 50,600 + 10,890 = \text{Rs. } 61,490$$

If one child goes free with two adults,  $\Rightarrow$  11 children will go with 22 adults, thus all the children will go for free.

Cost of 23 adults =  $23 \times 2200 = \text{Rs. } 50,600$

$$\text{Discount \%} = \frac{61490 - 50600}{61490} \times 100$$

$$= 17.71\%$$

$\Rightarrow$  Ans - (A)

### Question 68

**If  $(8 + 10x) : (13x - 2) = 2$ , then the value of  $x$  is**

A  $-3/4$

B  $-4/3$

C  $3/4$

D  $4/3$

Answer: C

Explanation:

$$\frac{8+10x}{13x-2} = 2$$

$$\Rightarrow 8 + 10x = 26x - 4$$

$$\Rightarrow 12 = 16x$$

$$\Rightarrow x = 3/4$$

so the answer is option C.

Question 69

If  $xy = -18$  and  $x^2 + y^2 = 85$ , then find the value of  $(x + y)$ .

A 8

B 10

C 9

D 7

Answer: D

Explanation:

Given :  $(x^2 + y^2) = 85$  and  $xy = -18$

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

$$\Rightarrow (x + y)^2 = 85 + (2 \times -18)$$

$$\Rightarrow (x + y)^2 = 85 - 36 = 49$$

$$\Rightarrow (x + y) = \sqrt{49} = 7$$

$\Rightarrow$  Ans - (D)

Question 70

A number is greater than twice its reciprocal by  $31/4$ . Find the number.

A 7

B 8

C 9



D 6

Answer: B

**Explanation:**

Let the number be  $x$

$$\text{According to ques, } \Rightarrow x - \frac{2}{x} = \frac{31}{4}$$

$$\Rightarrow \frac{x^2 - 2}{x} = \frac{31}{4}$$

$$\Rightarrow 4x^2 - 8 = 31x$$

$$\Rightarrow 4x^2 - 31x - 8 = 0$$

$$\Rightarrow 4x^2 + x - 32x - 8 = 0$$

$$\Rightarrow x(4x + 1) - 8(4x + 1) = 0$$

$$\Rightarrow (4x + 1)(x - 8) = 0$$

$$\Rightarrow x = 8, \frac{-1}{4}$$

$\Rightarrow$  Ans - (B)

**Question 71**

If  $2x - 3(x + 2) < 5 - 2x < -x + 2$ , then find the value of  $x$ .

A 2

B 0

C 10

D 12

Answer: C

**Explanation:**

$$\text{Expression 1 : } 5 - 2x < -x + 2$$

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

$$\Rightarrow x > 3 \text{ -----(i)}$$

$$\text{Expression 2 : } 2x - 3(x + 2) < 5 - 2x$$

$$\Rightarrow -x - 6 < 5 - 2x$$

$$\Rightarrow 2x - x < 5 + 6$$

$$\Rightarrow x < 11 \text{ -----(ii)}$$

Combining inequalities (i) and (ii), we get :  $3 < x < 11$

Thus, only value that  $x$  can take among the options = **10**

$\Rightarrow$  Ans - (C)

### Question 72

Refer the below data table and answer the following question.

	Weight (kg)	Height in Meter
Ahilya	60	1.8
Aishwarya	70	1.7
Akanksha	63	1.68
Alisha	67	1.76

Who has the least weight to height ratio?

- A Ahilya
- B Aishwarya
- C Akanksha
- D Alisha

**Answer:** A

#### **Explanation:**

Ratio of weight to height

$$\text{Ahilya} : \frac{60}{1.8} = 33.3 \quad \text{[LEAST]}$$

$$\text{Aishwarya} : \frac{70}{1.7} = 41.1$$

$$\text{Akanksha} : \frac{63}{1.68} = 37.5$$

$$\text{Alisha} : \frac{67}{1.76} = 38.06$$

=> Ans - (A)

### Question 73

Refer the below data table and answer the following question.

Year	Company's % Profit
2011	25
2012	25
2013	5
2014	25
2015	10

What was the revenue of the company if its expenditure was Rs. 350 crore in the year when its % profit was the least ?

A 367.5

B 385

C 402.5

D 350

**Answer: A**

**Explanation:**

Profit % was least in 2013 = 5%

Let revenue = Rs.  $x$  crore and expenditure = Rs. 350 crore

$$\Rightarrow \text{Profit \%} = \frac{x-350}{350} \times 100 = 5$$

$$\Rightarrow \frac{x-350}{350} = \frac{5}{100} = \frac{1}{20}$$

$$\Rightarrow x - 350 = \frac{350}{20} = 17.5$$

$$\Rightarrow x = 350 + 17.5 = 367.5 \text{ crore}$$

$\Rightarrow$  Ans - (A)

**Question 74**

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

No of Children	No of Houses
0	3
1	10
2	12
3	3

What is the average number of children per house ?

A 1.79

B 1.54

C 2.04

D 1.29

**Answer: B**

**Explanation:**

Total number of houses =  $3 + 10 + 12 + 3 = 28$

Total children =  $(0 \times 3) + (1 \times 10) + (2 \times 12) + (3 \times 3)$

=  $10 + 24 + 9 = 43$

∴ Average number of children per house =  $\frac{43}{28} \approx 1.54$

=> Ans - (B)

### Question 75

Refer the below data table and answer the following question.

Partners	Present % Share
Anand	15
Bassu	10
Chinmay	15
Dhiraj	10
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 60000 shares
- B 75000 shares
- C 90000 shares
- D 45000 shares

**Answer:** B

#### Explanation:

Total shares = 6,00,000

Original shares with Dhiraj =  $\frac{10}{100} \times 600000 = 60,000$

If Chinmay offers to sell 15000 of his shares to Dhiraj,

=> Shares with Dhiraj = 60,000 + 15,000 = 75,000

=> Ans - (B)

## English

### Instructions

For the following questions answer them individually

### Question 76

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

- A to accept something that happened in the past and move on
- B to complete a project or task
- C to control one's anger
- D to achieve something seemingly easy, but with a lot of difficulty

**Answer: A**

#### Question 77

**Improve the bracketed part of the sentence. I wish I (knew what was) wrong with my daughter.**

- A had known what is
- B knew what is
- C had knew what was
- D no improvement

**Answer: D**

#### Question 78

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

**Extreme anxiety, sorrow, or pain.**

- A pique
- B vexation
- C chagrin
- D distress

**Answer: D**

#### Question 79

**Rearrange the parts of the sentence in correct order.**

**Accepting that one form**

**P-of price discrimination is okay opens**

**Q-the door to all other forms**

**R-of discrimination as well**

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

**Answer: D**

#### **Question 80**

**Select the synonym of dare**

- A cohort
- B taunt
- C patronize
- D chum

**Answer: B**

#### **Question 81**

**Rearrange the parts of the sentence in correct order.**

**Seven decades ago,**

**P-Orwell wrote a clutch**

**Q-for the post-World War II British journal Polemic**

**R-of essays**

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

**Answer: C**

#### **Question 82**

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

**a region of injured tissue or skin in which blood capillaries have been ruptured; a bruise.**

- A pustule
- B knurl
- C contusion
- D tumour

**Answer: C**

### Question 83

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

**to get up on the wrong side of the bed**

- A to find oneself in a strange place when one wakes up especially after drinking a lot previous night
- B to start the day in a bad mood which continues all day long
- C to argue with your spouse
- D to roll a lot in bed while sleeping

**Answer: B**

### Question 84

**Select the antonym of snag**

- A hurdle
- B boon
- C bug
- D glitch

**Answer: B**

### Question 85

**Select the synonym of to delude**

- A hoodwink
- B conscientious

C scrupulous

D bona fide

**Answer: A**

#### Question 86

**In the following question, a sentence has been given in Active/Passive voice. Out of four alternatives suggested, select the one, which best expresses the same sentence in Passive/Active voice. The candidates are writing an essay.**

A An essay was wrote by the candidates.

B An essay is being written by the candidates.

C An essay has had been written by the candidates.

D An essay had been written by the candidates.

**Answer: B**

#### Question 87

**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. Bunty said, "I have done my class work".**

A Bunty said, he had done his class work.

B Bunty said that he had done his class work.

C Bunty was saying, he has done his class work.

D Bunty said that he did his class work.

**Answer: B**

#### Question 88

**Improve the bracketed part of the sentence. If I (just had) the money I would have bought the car.**

A have had

B was having

C had



**D** no improvement

**Answer: C**

**Question 89**

**Select the antonym of diligence**

**A** lethargy

**B** exertion

**C** vigour

**D** assiduity

**Answer: A**

**Question 90**

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

**The relocation of the car factory to our struggling town is an economic ----- .**

**A** boon

**B** good

**C** donation

**D** present

**Answer: A**

**Question 91**

**Select the word with the correct spelling.**

**A** thrashere

**B** fiefedoms

**C** snifing

**D** squashed

**Answer: D**

**Question 92**

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'.

Her heart was(A)/pounding as he(B)/stopped front of her.(C)/No error(D)

A A

B B

C C

D D

**Answer: C**

**Question 93**

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'.

He only plays a subsidiary(A)/ role in the management(B)/of this organization.(C)/No error(D)

A A

B B

C C

D D

**Answer: D**

**Question 94**

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

My grandmother's exercise regime is to walk the mall at a\_\_\_\_\_ pace.

A potent

B brisk

C strong

D vital

**Answer: B**

**Question 95**

Select the word with the correct spelling.

- A insolente
- B saphire
- C immersed
- D peperony

**Answer: C**

**Question 96**

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

\_\_\_\_\_reader can add to the list and to the possibilities of a new ethical and moral politics \_\_\_\_\_ requires a Gandhian inventiveness of ritual and politics. What I wish to add is a \_\_\_\_\_. The rituals of apology and the question of justice, reconciliation and ethical repair are not easy. They require a rigour and an inventiveness\_\_\_\_\_ethical thinking which\_\_\_\_\_new experiments with the idea of truth and healing in India.

\_\_\_\_\_ reader can add to the list

- A One
- B Some
- C Each
- D Anyone

**Answer: C**

**Question 97**

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

\_\_\_\_\_reader can add to the list and to the possibilities of a new ethical and moral politics\_\_\_\_\_ requires a Gandhian inventiveness of ritual and politics. What I wish to add is a \_\_\_\_\_. The rituals of apology and the question of justice, reconciliation and ethical repair are not easy. They require a rigour and an inventiveness\_\_\_\_\_ ethical thinking which\_\_\_\_\_ new experiments with the idea of truth and healing in India.

moral politics \_\_\_\_\_ requires a Gandhian inventiveness of ritual and politics.

- A which

- B why
- C where
- D what

Answer: A

### Question 98

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

\_\_\_\_\_ reader can add to the list and to the possibilities of a new ethical and moral politics\_\_\_\_\_ requires a Gandhian inventiveness of ritual and politics. What I wish to add is a \_\_\_\_\_ The rituals of apology and the question of justice, reconciliation and ethical repair are not easy. They require a rigour and an inventiveness \_\_\_\_\_ ethical thinking which\_\_\_\_\_new experiments with the idea of truth and healing in India. What I wish to add is a \_\_\_\_\_

- A fear
- B panic
- C warn
- D caveat

Answer: C

### Question 99

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

reader can add to the list and to the possibilities of a new ethical and moral politics requires a Gandhian inventiveness of ritual and politics. What I wish to add is a\_\_\_\_\_ The rituals of apology and the question of justice, reconciliation and ethical repair are not easy. They require a rigour and an inventiveness\_\_\_\_\_ethical thinking which\_\_\_\_\_new experiments with the idea of truth and healing in India.

They require a rigour and an inventiveness\_\_\_\_\_ethical thinking

- A with
- B of
- C to

D against

Answer: B

### Question 100

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

\_\_\_\_\_ reader can add to the list and to the possibilities of a new ethical and moral politics\_\_\_\_\_ requires a Gandhian inventiveness of ritual and politics. What I wish to add is a\_\_\_\_\_. The rituals of apology and the question of justice, reconciliation and ethical repair are not easy. They require a rigour and an inventiveness\_\_\_\_\_ethical thinking which\_\_\_\_\_new experiments with the idea of truth and healing in India.

which\_\_\_\_\_ new experiments with the idea of truth and healing in India.

A necessitate

B ask

C take

D oblige

Answer: A

# SSC CHSL 8 Feb 2017 Afternoon Shift

## Reasoning

### Instructions

For the following questions answer them individually

### Question 1

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

School : Teacher :: Hospital : ?

- A Clerk
- B Doctor
- C Student
- D Patient

**Answer:** B

### Explanation:

A teacher teaches in a school, similarly a doctor operates in a hospital.

=> Ans - (B)

### Question 2

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

JY : 35 :: RT : ?

- A 48
- B 38
- C 35
- D 24

**Answer:** B

### Explanation:

Expression = JY : 35 :: RT : ?

Numerical values of the respective letters are added.

Eg :- J = 10 , Y = 25  $\equiv$  10 + 25 = 35

Similarly, R = 18 , T = 20  $\equiv$  18 + 20 = 38

=> Ans - (B)

### Question 3

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

AD : N :: BD : ?

A P

B X

C Y

D Z

**Answer:** B

#### **Explanation:**

Expression = AD : N :: BD : ?

Numerical values of the corresponding alphabets are concatenated.

Eg :- A = 1 , D = 4  $\equiv$  14 = N

Similarly, B = 2 , D = 4  $\equiv$  24 = X

=> Ans - (B)

### Question 4

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

97 : 2 :: 84 : ?

A 4

B 3

C 6

D 5

**Answer:** A

#### **Explanation:**

Expression = 97 : 2 :: 84 : ?

The pattern followed is that the second number is the difference of the digits of the first number.

Eg :- 9 - 7 = 2

Similarly, 8 - 4 = 4

=> Ans - (A)

### Question 5

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

- A Niece
- B Nephew
- C Aunt
- D Sister

**Answer: B**

#### **Explanation:**

Niece, aunt and sister are all females while nephew is a male, hence nephew is the odd one out.

=> Ans - (B)

### Question 6

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

- A AE
- B IO
- C UA
- D GH

**Answer: D**

#### **Explanation:**

Apart from GH, all other pairs constitutes of vowels, hence GH is the odd one out.

=> Ans - (D)

### Question 7

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

- A 17
- B 23
- C 29
- D 33

**Answer: D**

#### **Explanation:**



Apart from 33, all are prime numbers, hence 33 which is a composite number is the odd one out.

=> Ans - (D)

### Question 8

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

A 7214

B 3618

C 3519

D 9436

**Answer: C**

### Explanation:

Apart from 3519, all are even numbers, hence 3519 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.

Glacier, Waterfall, River, ?

A Sea

B Rivulet

C Mountain

D Ice

**Answer: A**

### Explanation:

Glacier, waterfall and river all get merged with sea.

= Glacier, Waterfall, River, Sea

=> Ans - (A)

### Question 10

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) All shawls are carpets.

(II) No carpet is a pullover.

**Conclusion:**

(I) No shawls are pullovers.

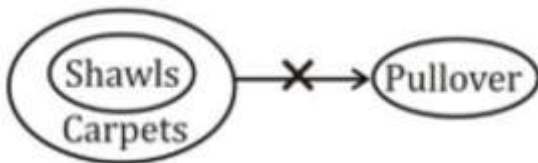
(II) All carpets are shawls.

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

**Answer:** A

**Explanation:**

The venn diagram for above statements is :



Conclusion:

(I) No shawls are pullovers = true

(II) All carpets are shawls = false

Thus, only conclusion I follows

=> 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.

?, HI, OP, WX

- A AB
- B BC

C DE

D EF

Answer: B

**Explanation:**

Expression : ?, HI, OP, WX

The pattern followed is :

$$\begin{array}{ccccccc} \begin{array}{|c|c|} \hline +1 \\ \hline B & C \\ \hline \end{array} & \xrightarrow{+5} & \begin{array}{|c|c|} \hline +1 \\ \hline H & I \\ \hline \end{array} & \xrightarrow{+6} & \begin{array}{|c|c|} \hline +1 \\ \hline O & P \\ \hline \end{array} & \xrightarrow{+7} & \begin{array}{|c|c|} \hline +1 \\ \hline W & X \\ \hline \end{array} \end{array}$$

Thus, missing term = BC

=> Ans - (B)

**Question 12**

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

144, 256, 400, ?

A 441

B 576

C 625

D 289

Answer: B

**Explanation:**

The pattern followed is :

$$\begin{array}{ccccccc} (12)^2 & & (16)^2 & & (20)^2 & & (24)^2 \\ \begin{array}{|c|c|} \hline +4 \\ \hline \end{array} & & \begin{array}{|c|c|} \hline +4 \\ \hline \end{array} & & \begin{array}{|c|c|} \hline +4 \\ \hline \end{array} & & \end{array}$$

Thus,  $24^2 = 576$

=> Ans - (B)

**Question 13**

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

5, 7.5, 12.5, 22.5, ?

A 42.5

B 42

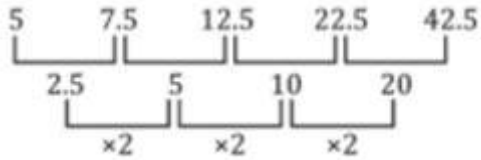
C 44

D 43.5

Answer: A

**Explanation:**

The pattern followed is :



Thus, missing number = 42.5

=> Ans - (A)

#### Question 14

Vineet is taller than Raman but shorter than Jyoti. Sumit is the shortest. Deepak is taller than Sumit but shorter than Raman. Who is the tallest?

A Jyoti

B Raman

C Vineet

D Deepak

Answer: A

**Explanation:**

Vineet is taller than Raman but shorter than Jyoti, => Jyoti > Vineet > Raman.

Also, Sumit is the shortest.

Deepak is taller than Sumit but shorter than Raman, => Raman > Deepak > Sumit.

Thus, combining above statements, we get : **Jyoti > Vineet > Raman > Deepak > Sumit**

∴ Jyoti is the tallest.

=> Ans - (A)

#### Question 15

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

i. Rainbow ii. Rancour iii. Rattle iv. Rainy

A i, iii, ii, iv

**B** i, iv, ii, iii

**C** i, iv, iii, ii

**D** ii, i, iv, iii

**Answer: B**

**Explanation:**

As per the order of dictionary :

= Rainbow -> Rainy -> Rancour -> Rattle

≡ i, iv, ii, iii

=> Ans - (B)

**Question 16**

In a certain code language, "BORROW" is written as "769965" and "BOMB" is written as "7647". How is "WOMB" written in that code language?

**A** 5647

**B** 5467

**C** 5677

**D** 5776

**Answer: A**

**Explanation:**

The codes for each letter is given :

W -> 5

O -> 6

M -> 4

B -> 7

Thus, WOMB : **5647**

=> Ans - (A)

**Question 17**

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

5	15	10
4	17	9
10	?	10

A 11

B 12

C 15

D 10

**Answer: D**

**Explanation:**

The sum of three digits in the horizontal row is equal to 30

1)  $5 + 15 + 10 = 30$

2)  $4 + 17 + 9 = 30$

3)  $10 + x + 10 = 30 ; x = 10$

Hence, option D is the correct answer.

**Question 18**

If "A" denotes "multiplied by", "B" denotes "subtracted from", "C" denotes "added to" and "D" denotes "divided by", then

$7 \text{ B } 17 \text{ C } 88 \text{ D } 11 \text{ A } 6 = ?$

A 27

B 28

C 38

D 26

**Answer: C**

**Explanation:**

Expression :  $7 \text{ B } 17 \text{ C } 88 \text{ D } 11 \text{ A } 6 = ?$

$$\equiv 7 - 17 + 88 \div 11 \times 6$$

$$= -10 + (8 \times 6)$$

$$= -10 + 48 = 38$$

=> Ans - (C)

**Question 19**

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

A\_BC\_BBC\_BB\_

A BAAC

**B** BBBC

**C** BABA

**D** ABBC

**Answer: A**

**Explanation:**

The pattern followed is that in groups of 4, the term 'ABBC' is repeated.

= ABBC ABBC ABBC

=> Ans - (A)

**Question 20**

Rahul moves 5 km towards south and then takes a left turn to move 5 km more. Again, he takes a left turn and moves 10 km and finally, he moves 5 km towards west. In which direction is he now from his initial position?

**A** West

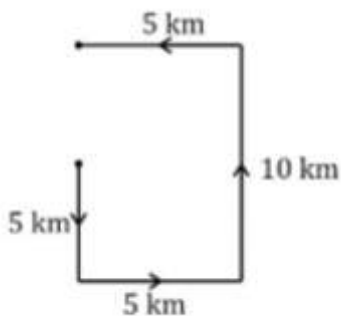
**B** East

**C** South

**D** North

**Answer: D**

**Explanation:**



Rahul moves 5 km towards south and then takes a left turn to move 5 km towards east. Again, he takes a left turn and moves 10 km northwards and finally, stops after moving 5 km towards west.

Thus, he is North from his initial position.

=> Ans - (D)

### 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 two 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, 43 etc. and 'R' can be represented by 66, 57 etc. Similarly, you have to identify the set of the word 'JOIN'.

	0	1	2	3	4
0	J	H	J	K	A
1	E	J	O	J	O
2	J	N	P	O	S
3	T	F	O	H	D
4	Q	O	W	N	F

	5	6	7	8	9
5	X	Z	R	P	A
6	Z	R	I	I	S
7	I	C	F	K	N
8	N	I	G	N	M
9	M	V	N	P	N

- A 00,43,32,79
- B 02,67,14,57
- C 11,32,66,79
- D 20,23,86,97

Answer: D

#### Explanation:

- (A) : 00,43,32,79 = JNON
- (B) : 02,67,14,57 = JIOR
- (C) : 11,32,66,79 = JORN
- (D) : 20,23,86,97 = **JOIN**

=> Ans - (D)

### Question 22

Johnny's father is the brother-in-law of Nisha's only sister. How is Johnny related to Nisha?

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

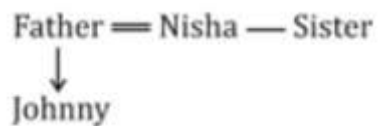
Answer: A

#### Explanation:



Johnny's father is the brother-in-law of Nisha's only sister.

Relation is :

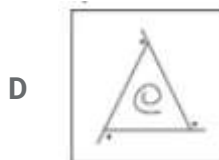
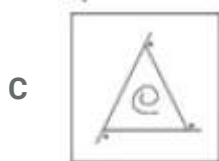
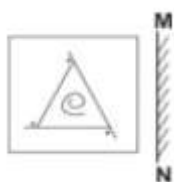


Thus, Johnny is Nisha's son.

=> Ans - (A)

### Question 23

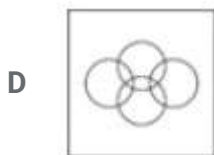
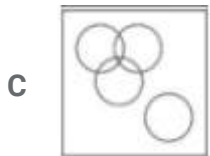
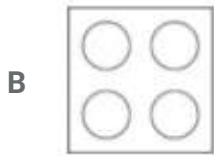
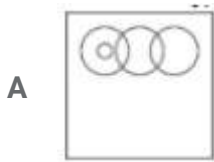
if a mirror is placed on the line MN, then which of the answer figures is the right image of the given figure?



Answer: A

### Question 24

The diagram that identify best represents the relationship among the given classes.  
Doctor, Smoker, Indian, Non-Smoker



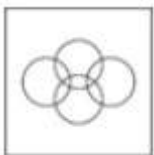
Answer: D

**Explanation:**

A doctor can be a smoke, a non smoker or and Indian. Similarly, an Indian can be all of the three.

But a smoker cannot be a non smoker.

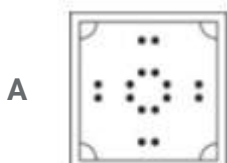
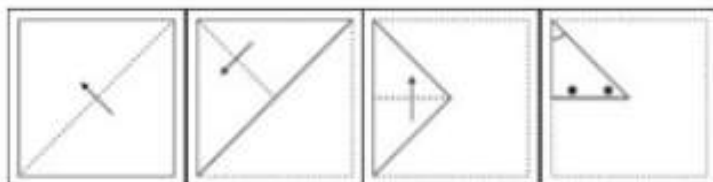
Thus, the venn diagram that best describes above relationship is :

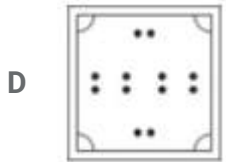
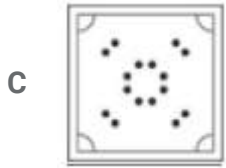
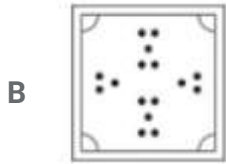


=> Ans - (D)

**Question 25**

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





**Answer: A**

## General Awareness

### Instructions

For the following questions answer them individually

### Question 26

Which programming language is developed by James A Gosling?

- A** ASP.Net
- B** Java
- C** PHP
- D** C#

**Answer: B**

### Explanation:

James A Gosling is known as the father of the **Java** programming language as he developed this programming language.

=> Ans - (B)

### Question 27

Kaleidoscope was invented by \_\_\_\_\_.

- A John Barber
- B Tim Berners-Lee
- C Alan Blumlein
- D David Brewster

**Answer: D**

**Explanation:**

Kaleidoscope was invented by the Scottish physicist **Sir David Brewster** in 1816.

=> Ans - (D)

**Question 28**

**The nitrogenous waste of Human Beings is**

- A Ammonia
- B Urea
- C Ammonium Nitrate
- D Uric Acid

**Answer: B**

**Explanation:**

The major nitrogenous waste product in Human Beings is **Urea**.

=> Ans - (B)

**Question 29**

**Haustoria or sucking roots are found in which of the following?**

- A Wheat
- B Mango
- C Chestnut
- D Cuscuta

**Answer: D**

**Explanation:**

**Cuscuta** is total stem parasite that has Haustoria or sucking roots.

=> Ans - (D)

**Question 30**

**Equus Asinus is the scientific name of**

- A Donkey
- B Cow
- C Deer
- D Kangaroo

**Answer: A**

**Explanation:**

Equus Asinus is the scientific name of **Donkey**.

=> Ans - (A)

**Question 31**

**\_\_\_\_\_ is an anaesthetic agent.**

- A Acetylene
- B Glycol
- C Diethylether
- D Ethylene

**Answer: C**

**Explanation:**

**Diethylether** (or ether) is an anaesthetic agent for blocking pain.

=> Ans - (C)

**Question 32**

**\_\_\_\_\_ is used for making chemical apparatus like beakers, flasks etc.**

- A Potash glass
- B Hard glass
- C Soda glass
- D Jena glass

**Answer: B**

**Explanation:**

**Hard Glass** is used for making chemical apparatus like beakers, flasks etc.

=> Ans - (B)

**Question 33**

**Rashtrapati Bhavan was built in \_\_\_\_\_.**

**A** 1852

**B** 1910

**C** 1947

**D** 1986

**Answer: B**

**Explanation:**

Rashtrapati Bhavan was built in **1910**

=> Ans - (B)

**Question 34**

**Santhara is a religious ritual of \_\_\_\_\_ community.**

**A** Sikhs

**B** Jews

**C** Jain

**D** Buddhists

**Answer: C**

**Explanation:**

Santhara (fast to death) is a religious ritual of **Jain** community.

=> Ans - (C)

**Question 35**

**If for a perfectly competitive firm, price is Rs. 60, output is 300 units, average variable costs are Rs. 18, and average total costs are Rs. 36. The firm's profits are equal to**

**A** Rs. 5400

**B** Rs. 3600

**C** Rs. 7200

**D** Rs. 1800

**Answer: C**

### Question 36

**Which of the following will cause an increase in demand for a good?**

**A** an increase in income if the good is an inferior goods

**B** a decrease in the price of the goods

**C** a decrease in income if the good is a normal goods

**D** an increase in the price of its substitute goods

**Answer: D**

#### **Explanation:**

Increasing the price of its substitute goods will increase the demand for a good. While, a decrease in the price of the goods cause an increase in quantity demanded, not an increase in demand.

=> Ans - (D)

### Question 37

**The ionosphere overlaps which two layers of the atmosphere?**

**A** Troposphere and Mesosphere

**B** Mesosphere and Stratosphere

**C** Ionosphere and Homosphere

**D** Exosphere and Thermosphere

**Answer: D**

#### **Explanation:**

The ionosphere overlaps **Exosphere and Thermosphere** in the atmosphere.

=> Ans - (D)

### Question 38

**Carcinogenic chemicals cause**

- A Heart diseases
- B Diabetes
- C Cancer
- D Asthma

**Answer:** C

**Explanation:**

Carcinogenic chemicals cause **Cancer**.

=> Ans - (C)

**Question 39**

**First country to appoint Lokpal or equivalent to a Lokpal is \_\_\_\_\_.**

- A Brazil
- B Burma
- C Sweden
- D India

**Answer:** C

**Explanation:**

**Sweden** was the first country to appoint Lokpal or equivalent to a Lokpal.

=> Ans - (C)

**Question 40**

**Which are the oldest mountains in India?**

- A Western Ghats
- B Satpura Range
- C Aravallis
- D Eastern Ghats

**Answer:** C

**Explanation:**



The **Aravalli Range** are the oldest fold mountains in India. The Appalachian Mountains are oldest in the world.

=> Ans - (C)

#### Question 41

**Which country is the largest producer of Rice?**

- A Brazil
- B China
- C United States
- D India

**Answer:** B

#### **Explanation:**

**China** is the largest producer of Rice and India is at second position.

=> Ans - (B)

#### Question 42

**Who built Jama Masjid?**

- A Guru Ramdas
- B Shah Jahan
- C Rao Jodhaji
- D Mahatma Gandhi

**Answer:** B

#### **Explanation:**

Mughal emperor **Shah Jahan** built the Jama Masjid between 1644 and 1656.

=> Ans - (B)

#### Question 43

**Battle of Haldighati was fought in the year \_\_\_\_\_.**

- A 1764
- B 1526

C 1576

D 1857

**Answer: C**

**Explanation:**

The Battle of Haldighati was fought on **18 June 1576** between cavalry and archers supporting the Rana of Mewar, Maharana Pratap and the Mughal emperor Akbar's forces in Rajasthan.

=> Ans - (C)

**Question 44**

**First Indian woman to get Bharat Ratna.**

A Indira Gandhi

B Vijay Laxmi Pandit

C Mother Teresa

D Leela Seth

**Answer: A**

**Explanation:**

**Indira Gandhi** was the first woman to be awarded with the highest civilian award, Bharat Ratna of India in the year 1971 for her great involvement in the field of Public Affairs of the state, Uttar Pradesh.

=> Ans - (A)

**Question 45**

**When ice floats on water, its \_\_\_\_\_ part remains outside the water.**

A 0.5

B 0.3

C 0.1

D 1

**Answer: C**

**Explanation:**

$(\frac{1}{10})^{th}$  i.e. **0.1** part of ice remains outside water when ice floats on water.

=> Ans - (C)

#### Question 46

Instrument for measuring low temperatures is called

- A Diagometer
- B Cryometer
- C Chromatoptometer
- D Thermometer

**Answer: B**

#### Explanation:

A **cryometer** is used to measure low temperatures.

=> Ans - (D)

#### Question 47

In Lok Sabha the total number of members from states is

- A 630
- B 530
- C 430
- D 330

**Answer: B**

#### Explanation:

In Lok Sabha, there are upto **530** members to represent the states.

=> Ans - (B)

#### Question 48

At the time of emergency in 1975, who was serving as the President of India?

- A Morarji Desai
- B Fakhruddin Ali Ahmed
- C V P Singh
- D Indira Gandhi

**Answer: B**

**Explanation:**

The Indian Emergency of 25th June 1975-21st March 1977 was a 21 month period, when President was **Fakhruddin Ali Ahmed**.

=> Ans - (B)

**Question 49**

**Kevin Durant plays which International Sport?**

- A Golf
- B Baseball
- C Basketball
- D Boxing

**Answer: C**

**Explanation:**

Kevin Durant is an American professional **basketball** player for the Golden State Warriors.

=> Ans - (C)

**Question 50**

**Who is the author of the book -"My Experiments with Truth"?**

- A Aristotle
- B Winston Churchill
- C Jarnes Morris
- D Mahatma Gandhi

**Answer: D**

**Explanation:**

My Experiments with Truth is the autobiography of **Mahatma Gandhi** covering his life from early childhood through to 1921.

=> Ans - (D)

## Mathematics

**Instructions**

For the following questions answer them individually

**Question 51**

If  $3.352 - (9.759 - x) - 19.64 = 7.052$ , then what is the value of  $x$ ?

A -6.181

B 13.581

C 33.099

D 39.803

**Answer: C**

**Explanation:**

Expression :  $3.352 - (9.759 - x) - 19.64 = 7.052$

$$\Rightarrow 3.352 - 9.759 + x = 7.052 + 19.64$$

$$\Rightarrow x = 26.692 + 9.759 - 3.352$$

$$\Rightarrow x = 36.451 - 3.352$$

$$\Rightarrow x = 33.099$$

$$\Rightarrow \text{Ans - (C)}$$

**Question 52**

Square of  $(7 - 4x)$  is

A  $16x^2 - 28x + 49$

B  $49 - 28x - 16x^2$

C  $49 - 56x - 16x^2$

D  $16x^2 - 56x + 49$

**Answer: D**

**Explanation:**

To find :  $(7 - 4x)^2$

$$= (7)^2 + (-4x)^2 + 2(7)(-4x)$$

$$= 16x^2 + 49 - 56x$$

$$\Rightarrow \text{Ans - (D)}$$

### Question 53

On a certain principal if the Simple interest for two years is Rs 3000 and Compound interest for the two years is Rs 3225, what is the rate of Interest?

- A 7.5 percent
- B 30 percent
- C 15 percent
- D 22.5 percent

**Answer: C**

#### Explanation:

Let the principal amount =  $Rs.100x$  and rate of interest =  $r\%$

Time period = 2 years

$$\text{Simple Interest} = \frac{P \times R \times T}{100} = 3000$$

$$\Rightarrow \frac{100x \times r \times 2}{100} = 3000$$

$$\Rightarrow 2rx = 3000$$

$$\Rightarrow x = \frac{3000}{2r} = \frac{1500}{r}$$

$$\text{Compound Interest} = P \left[ \left( 1 + \frac{R}{100} \right)^T - 1 \right] = 3225$$

$$\Rightarrow 100x \left[ \left( 1 + \frac{r}{100} \right)^2 - 1 \right] = 3225$$

$$\Rightarrow 100x \left[ \left( 1 + \frac{r^2}{100^2} + 2 \frac{r}{100} \right) - 1 \right] = 3225$$

$$\Rightarrow \left( 100 \times \frac{1500}{r} \right) \left[ \frac{r^2}{10000} + \frac{2r}{100} \right] = 3225$$

$$\Rightarrow 15r + 3000 = 3225$$

$$\Rightarrow 15r = 3225 - 3000 = 225$$

$$\Rightarrow r = \frac{225}{15} = 15\%$$

$\Rightarrow$  Ans - (C)

### Question 54

At 10% discount the selling price of a toaster is Rs 18000, what is the selling price if the discount is 37.5%?

- A Rs 7812.5
- B Rs 12500
- C Rs 8593.75
- D Rs 15468.75

**Answer: B**

**Explanation:**

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

If discount is 10%, Selling price =  $\frac{100-10}{100} \times 100x = 90x$

According to ques,  $\Rightarrow 90x = 18000$

$$\Rightarrow x = \frac{18000}{90} = 200$$

If discount is 37.5%, selling price =  $\frac{100-37.5}{100} \times 100x = 62.5x$

$$= 62.5 \times 200 = Rs.12,500$$

$\Rightarrow$  Ans - (B)

**Question 55**

An engineering student has to secure 24% marks to pass. He gets 61 and fails by 29 marks. What is the maximum marks for that exam?

- A 375 marks
- B 400 marks
- C 425 marks
- D 450 marks

**Answer:** A

**Explanation:**

Let maximum marks =  $100x$

$$\Rightarrow \text{Passing marks} = \frac{24}{100} \times 100x = 24x$$

According to ques,

$$\Rightarrow 24x - 29 = 61$$

$$\Rightarrow 24x = 61 + 29 = 90$$

$$\Rightarrow x = \frac{90}{24} = \frac{15}{4}$$

$$\therefore \text{Maximum marks} = 100 \times \frac{15}{4} = 25 \times 15 = 375$$

$\Rightarrow$  Ans - (A)

**Question 56**

If  $7 + 3x \geq 5 - x/2$  and  $2x + 3 \leq 5 - 2x$ ; then  $x$  can take which of the following values?

- A 0

B 1

C 2

D -1

**Answer: A**

**Explanation:**

Expression 1 :  $7 + 3x \geq 5 - x/2$

$$\Rightarrow 3x + \frac{x}{2} \geq 5 - 7$$

$$\Rightarrow \frac{7x}{2} \geq -2$$

$$\Rightarrow x \geq \frac{-4}{7} \text{ -----(i)}$$

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

$$\Rightarrow 2x + 2x \leq 5 - 3$$

$$\Rightarrow 4x \leq 2$$

$$\Rightarrow x \leq \frac{2}{4} = \frac{1}{2} \text{ -----(ii)}$$

Combining inequalities (i) and (ii), we get :  $\frac{-4}{7} \leq x \leq \frac{1}{2}$

Thus, the only possible value that  $x$  can take among the given options = 0

$\Rightarrow$  Ans - (A)

**Question 57**

**The third proportional of two numbers 9 and 15 is**

A 21

B 30

C 25

D 45

**Answer: C**

**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

The given numbers are 9 and 15

$$\Rightarrow (15)^2 = 9 \times c$$

$$\Rightarrow c = \frac{15 \times 15}{9}$$

$$\Rightarrow c = 5 \times 5 = 25$$

$\Rightarrow$  Ans - (C)



**Question 58**

What will be the roots of the quadratic equation  $x^2 - 25x + 156 = 0$ ?

A 12, 13

B 25, 1

C 9, 16

D 31, 6

**Answer: A**

**Explanation:**

Equation :  $x^2 - 25x + 156 = 0$

$\Rightarrow x^2 - 12x - 13x + 156 = 0$

$\Rightarrow x(x - 12) - 13(x - 12) = 0$

$\Rightarrow (x - 12)(x - 13) = 0$

$\Rightarrow x = 12, 13$

$\Rightarrow$  Ans - (A)

**Question 59**

If a cone of radius 3.5 cm and height 9.6 cm is melted and constructed into a cylinder of the same radius, what will be the height of this cylinder? (Take  $\pi = 22/7$ )

A 3.2 cm

B 6.4 cm

C 1.6 cm

D 4.8 cm.

**Answer: A**

**Explanation:**

Let height of cylinder =  $h$  cm and radius,  $r = 3.5$  cm

Height of cone,  $H = 9.6$  cm and Radius,  $R = 3.5$  cm

Volume of cylinder = Volume of cone

$\Rightarrow \pi r^2 h = \frac{1}{3} \pi R^2 H$

$\Rightarrow (3.5)^2 \times h = \frac{1}{3} \times (3.5)^2 \times 9.6$

$$\Rightarrow h = \frac{9.6}{3} = 3.2 \text{ cm}$$

$\Rightarrow$  Ans - (A)

### Question 60

Which of the following is not a quadratic equation?

**A**  $3x(x + 5) - 11 = 2x(x - 2) + 6$

**B**  $4x(x + 3) + 7 = 4x(x - 11) + 9$

**C**  $x(x + 2) - 15 = x(2x - 5) + 11$

**D**  $4x^2 - 6x - 9 = 0$

**Answer: B**

#### Explanation:

(A):  $3x(x + 5) - 11 = 2x(x - 2) + 6$

$$\Rightarrow 3x^2 + 15x - 11 = 2x^2 - 4x + 6$$

$$\Rightarrow x^2 + 19x - 17 = 0$$

(B):  $4x(x + 3) + 7 = 4x(x - 11) + 9$

$$\Rightarrow 4x^2 + 12x + 7 = 4x^2 - 44x + 9$$

$$\Rightarrow 56x - 2 = 0$$

(C):  $x(x + 2) - 15 = x(2x - 5) + 11$

$$\Rightarrow x^2 + 2x - 15 = 2x^2 - 5x + 11$$

$$\Rightarrow x^2 - 7x + 26 = 0$$

(D):  $4x^2 - 6x - 9 = 0$

$\therefore$  Option (B) is not a quadratic equation.

### Question 61

A shopkeeper by selling 9 Rolex watches, earns a profit equal to the selling price of 4 Rolex watches. His profit percentage is

**A** 44.4 percent

**B** 88.8 percent

**C** 80 percent

D 8.8 percent

Answer: C

**Explanation:**

Let cost price of a watch =  $Rs.x$

Selling price of a watch =  $Rs.y$

=> Selling price of 4 watches =  $Rs.4y$

According to ques, =>  $9(y - x) = 4y$

=>  $9y - 9x = 4y$

=>  $5y = 9x$

=>  $\frac{x}{y} = \frac{5}{9}$

Let Cost price,  $x = 5$  and selling price,  $y = 9$

∴ Profit % =  $\frac{y-x}{x} \times 100$

=  $\frac{9-5}{5} \times 100$

=  $4 \times 20 = 80\%$

=> Ans - (C)

**Question 62**

A circle is inscribed in a square. If the length of the diagonal of the square is  $14\sqrt{2}$  cm, what is the area (in sq cm) of the circle?

A 308

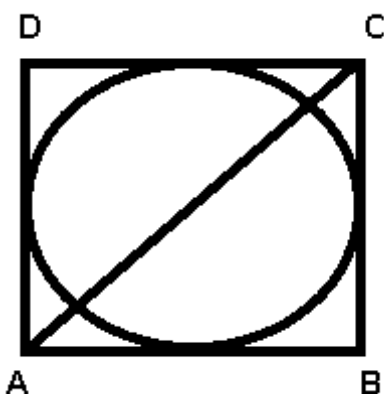
B 462

C 154

D 616

Answer: C

**Explanation:**



Length of AC =  $14\sqrt{2}$  cm

Let side of square =  $x$  cm = Diameter of circle

$$\text{In } \triangle ABC, \Rightarrow (AB)^2 + (BC)^2 = (AC)^2$$

$$\Rightarrow (x)^2 + (x)^2 = (14\sqrt{2})^2$$

$$\Rightarrow 2x^2 = 392$$

$$\Rightarrow x^2 = \frac{392}{2} = 196$$

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

$$\text{Thus radius of circle} = \frac{14}{2} = 7 \text{ cm}$$

$$\therefore \text{Area of circle} = \pi r^2$$

$$= \frac{22}{7} \times (7)^2 = 22 \times 7 = 154 \text{ cm}^2$$

$\Rightarrow$  Ans - (C)

### Question 63

In  $\triangle PQR$ , S and T are points on side PQ and PR respectively. ST is parallel to QR. If S divides PQ in the ratio 4:1 and length of QR is 15 cm, what is the length of ST?

A 3 cm

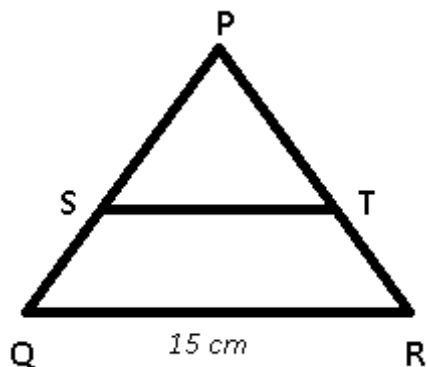
B 5 cm

C 12 cm

D 10 cm

Answer: C

Explanation:



It is given that  $PS : SQ = 4 : 1$  and  $QR = 15$  cm

Let  $PS = 4$  cm and  $SQ = 1$  cm

ST is parallel to QR

$$\Rightarrow \frac{PS}{PQ} = \frac{ST}{QR}$$

$$\Rightarrow \frac{4}{4+1} = \frac{ST}{15}$$

$$\Rightarrow \frac{4}{5} = \frac{ST}{15}$$

$$\Rightarrow ST = 4 \times 3 = 12 \text{ cm}$$

$\Rightarrow$  Ans - (C)

#### Question 64

If  $1/(1 + \cos A) + 1/(1 - \cos A) = x$ , then value of  $x$  is

A  $2\sec^2 A$

B  $2\operatorname{cosec} A$

C  $2\operatorname{cosec}^2 A$

D  $2\sec A$

**Answer: C**

**Explanation:**

$$\text{Expression: } \frac{1}{1+\cos A} + \frac{1}{1-\cos A}$$

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

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

$$= 2\operatorname{cosec}^2 A$$

$\Rightarrow$  Ans - (C)

#### Question 65

Of the 3 numbers whose average is 64, the first number is  $1/3$  times the sum of other 2. The first number is

A 72

B 32

C 96

D 48

**Answer: D**

**Explanation:**

Let the three numbers be  $x, y, z$

$$\text{Sum of three numbers} = x + y + z = 64 \times 3 = 192$$

$$\text{According to ques, } \Rightarrow x = \frac{1}{3} \times (y + z)$$

$$\Rightarrow x = \frac{1}{3} \times (192 - x)$$

$$\Rightarrow 3x = 192 - x$$

$$\Rightarrow 3x + x = 4x = 192$$

$$\Rightarrow x = \frac{192}{4} = 48$$

$\Rightarrow$  Ans - (D)

### Question 66

If  $\cos 45^\circ - \sec 30^\circ = x$ , then value of x is

A  $\frac{(1+\sqrt{2})}{2}$

B  $\frac{(2\sqrt{2}-\sqrt{3})}{2}$

C  $\frac{(\sqrt{3}-2\sqrt{2})}{\sqrt{6}}$

D  $\frac{4}{\sqrt{3}}$

**Answer: C**

### Explanation:

Expression :  $\cos 45^\circ - \sec 30^\circ = x$

$$= \frac{1}{\sqrt{2}} - \frac{2}{\sqrt{3}}$$

$$= \frac{\sqrt{3}-2\sqrt{2}}{\sqrt{6}}$$

$\Rightarrow$  Ans - (C)

### Question 67

Ajit is two times as good a workman as Badrinath and therefore is able to finish a job in 30 days less than Badrinath. Working together, they can do it in

A 10 days

B 30 days

C 15 days

D 20 days

**Answer: D**

### Explanation:

Ratio of times taken by Ajit and Badrinath = 1 : 2

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

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

If difference of time is 30 days, Badrinath takes =  $\frac{2}{1} \times 30 = 60$  days

So, Ajit takes 30 days

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

Badrinath's 1 day's work =  $\frac{1}{60}$

(Ajit + Badrinath)'s 1 day's work together =  $\frac{1}{30} + \frac{1}{60} = \frac{3}{60} = \frac{1}{20}$

$\therefore$  Ajit and Badrinath together can do the work in = 20 days

=> Ans - (D)

### Question 68

If  $\cot(A/2) = x$ , then x is equal to

A  $\tan A / (1 + \sec A)$

B  $1 / (\sec A + \cot A)$

C  $\tan A / (1 + \operatorname{cosec} A)$

D  $1 / (\operatorname{cosec} A - \cot A)$

Answer: D

### Explanation:

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

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

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

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

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

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

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

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

$$\text{Similarly, } \Rightarrow \cos\left(\frac{A}{2}\right) = \sqrt{\frac{(1 + \cos A)}{2}}$$

Now, to find :  $\cot\left(\frac{A}{2}\right)$

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

$$= \sqrt{\frac{(1 + \cos A)}{2}} \div \sqrt{\frac{(1 - \cos A)}{2}}$$

$$= \sqrt{\frac{(1 + \cos A)}{2}} \times \sqrt{\frac{2}{(1 - \cos A)}}$$

$$\begin{aligned}
&= \sqrt{\frac{1+\cos A}{1-\cos A}} \\
&= \sqrt{\frac{1+\cos A}{1-\cos A} \times \frac{1-\cos A}{1-\cos A}} \\
&= \sqrt{\frac{1-\cos^2 A}{(1-\cos A)^2}} = \sqrt{\frac{\sin^2 A}{(1-\cos A)^2}} \\
&= \frac{\sin A}{1-\cos A}
\end{aligned}$$

Dividing numerator and denominator by  $(\sin A)$

$$= \frac{1}{\operatorname{cosec} A - \cot A}$$

=> Ans - (D)

### Question 69

The length of the diagonal of a square is 10 cm. What is area of this square?

- A 50 sq cm
- B 100 sq cm
- C 200 sq cm
- D 25 sq cm

**Answer:** A

#### Explanation:

Let the side of square =  $s$  cm and diagonal,  $d = 10$  cm

$$\Rightarrow (s)^2 + (s)^2 = (d)^2$$

$$\Rightarrow 2s^2 = (10)^2 = 100$$

$$\Rightarrow s^2 = \frac{100}{2} = 50$$

$$\therefore \text{Area of square} = s^2 = 50\text{cm}^2$$

=> Ans - (A)

### Question 70

A car travels a certain distance at 32 km/h and comes back at 68 km/h. What is the average speed for total journey?

- A 50 km/hr
- B 37.04 km/hr
- C 43.52 km/hr



D 56.48 km/hr

Answer: C

**Explanation:**

Average speed of the journey is the harmonic mean of the speeds 32 and 68 km/hr

Harmonic mean of two numbers 'x' and 'y' =  $\frac{2}{\frac{1}{x} + \frac{1}{y}}$

$$\begin{aligned}\text{Average speed} &= \frac{2}{\frac{1}{32} + \frac{1}{68}} \\ &= 2 \div \frac{68+32}{68 \times 32} = \frac{2 \times 68 \times 32}{100} \\ &= \frac{4352}{100} = 43.52 \text{ km/hr}\end{aligned}$$

=> Ans - (C)

**Question 71**

What is the slope of the line, parallel to the line  $3x - 6y = 4$ ?

A -1/2

B 1/2

C 2

D -2

Answer: B

**Explanation:**

Slope of line having equation :  $ax + by + c = 0$  is  $\frac{-a}{b}$

Slope of line passing  $3x - 6y = 4$  is  $\frac{-3}{-6}$

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

Slope of two parallel lines is always equal.

=> Slope of the line parallel to the line having slope  $1/2 = \frac{1}{2}$

=> Ans - (B)

**Question 72**

Refer the below data table and answer the following Question.

	Weight (kg)	Height in Meter
<b>Aarti</b>	68	1.65
<b>Aarohi</b>	55	1.61
<b>Aarushi</b>	71	1.68
<b>Aasha</b>	59	1.56

Who has the least weigh to height ratio ?

- A Aarti
- B Aarohi
- C Aarushi
- D Aasha

**Answer: B**

**Explanation:**

Ratio of weight to height

$$\text{Aarti} : \frac{68}{1.65} = 41.2$$

$$\text{Aarohi} : \frac{55}{1.61} = 34.1 \quad \text{[LEAST]}$$

$$\text{Aarushi} : \frac{71}{1.68} = 42.2$$

$$\text{Aasha} : \frac{59}{1.56} = 37.8$$

=> Ans - (B)

**Question 73**

Refer the below data table and answer the following Question.

Year	Company's % Profit
2011	25
2012	25
2013	10
2014	20
2015	20

What was the revenue of the company if its expenditure was Rs.275 crore in the year when its % profit was the least ?

- A 357.5
- B 330
- C 302.5
- D 275

**Answer: C**

**Explanation:**

Profit % was least in 2013 = 10%

Let revenue = Rs.  $x$  crore and expenditure = Rs. 275 crore

$$\Rightarrow \text{Profit \%} = \frac{x-275}{275} \times 100 = 10$$

$$\Rightarrow \frac{x-275}{275} = \frac{10}{100} = \frac{1}{10}$$

$$\Rightarrow x - 275 = \frac{275}{10} = 27.5$$

$$\Rightarrow x = 275 + 27.5 = 302.5$$

$\therefore$  Revenue of the company = Rs. 302.5 crore

$\Rightarrow$  Ans - (C)

#### Question 74

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

No of Children	No of Houses
0	4
1	13
2	10
3	5

What is the average number of children per house?

A 2

B 1.75

C 1.5

D 1.25

**Answer:** C

#### **Explanation:**

Total number of houses =  $4 + 13 + 10 + 5 = 32$

Total children =  $(0 \times 4) + (1 \times 13) + (2 \times 10) + (3 \times 5)$

=  $13 + 20 + 15 = 48$

$\therefore$  Average number of children per house =  $\frac{48}{32} = 1.5$

$\Rightarrow$  Ans - (C)

### Question 75

Refer the below data table and answer the following Question.

Partners	Present % Share
Anand	15
Bassu	15
Chinmay	15
Dhiraj	20
Ejaz	35

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

- A 240000 shares
- B 210000 shares
- C 225000 shares
- D 195000 shares

**Answer:** C

#### **Explanation:**

Total shares = 6,00,000

Original shares with Ejaz =  $\frac{35}{100} \times 600000 = 2,10,000$

If Basu offers to sell 15000 of his shares to Ejaz,

=> Shares with Ejaz = 2,10,000 + 15,000 = 2,25,000

=> 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.

It does not suit you to cast \_\_\_\_\_ on the character of such a pure woman.

- A praise

- B abuses
- C vituperations
- D aspersions

**Answer: D**

#### **Question 77**

**Select the word with the correct spelling.**

- A marothon
- B seagulls
- C pungancy
- D palpatted

**Answer: B**

#### **Question 78**

**Select the word with the correct spelling.**

- A garotte
- B dillution
- C variably
- D exhumming

**Answer: C**

#### **Question 79**

**Select the antonym of homogeneous**

- A akin
- B ditto
- C disparate
- D cognate

**Answer: C**

**Question 80**

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.

The comatose patient was kept under observation till his body's systems came back from suspended \_\_\_\_\_.

- A dynamism
- B elation
- C animation
- D ebullience

**Answer: C**

**Question 81**

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

an event serving as an introduction to something more important

- A perform
- B prelude
- C introduce
- D preface

**Answer: B**

**Question 82**

Improve the bracketed part of the sentence

The good fortune of (my being) your disciple in my youth has greatly benefited me in my career.

- A my having been
- B myself being
- C being
- D no improvement

**Answer: A**

**Question 83**

**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 injured old man exclaimed, 'Will none of you help me?'**

- A** The injured old man exclaimed whether none of them would help him.
- B** The injured old man exclaimed if none of them would help him.
- C** The injured old man said that could anyone of them help him.
- D** The injured old man cried if none of them would help him.

**Answer: A**

**Question 84**

**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'.**

**All the furnitures(A)/has been replaced(B)/by the landlord.(C)/No error(D)**

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

**Answer: A**

**Question 85**

**Rearrange the parts of the sentence in correct order.**

**There is also**

**P-drought, the**

**Q-the hope that after two years of**

**R-monsoon will be good in the coming fiscal**

- A** QPR
- B** RQP
- C** PQR

**D** PRQ

**Answer:** A

**Question 86**

**Select the synonym of scarcity**

**A** opulence

**B** myriad

**C** plethora

**D** dearth

**Answer:** D

**Question 87**

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

**To bite the dust**

**A** To be killed

**B** To fall down

**C** To be dirt poor

**D** To get dirty

**Answer:** A

**Question 88**

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

**To burn the midnight oil**

**A** When resources get finished half way

**B** To read or work late into the night

**C** Value of a small lamp is most when it is the darkest

**D** To save some resources for the future



**Answer: B**

**Question 89**

**Improve the bracketed part of the sentence**

**Before I met your brother I (have had) a poor opinion of him.**

- A** had had
- B** had
- C** did have
- D** no improvement

**Answer: B**

**Question 90**

**Rearrange the parts of the sentence in correct order.**

**The party faithful, who**

**P-expectations, are now disillusioned**

**Q-had greeted his political arrival in 2004**

**R-with great enthusiasm, and**

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

**Answer: B**

**Question 91**

**Select the antonym of feign**

- A** bluff
- B** affect
- C** act
- D** fact

**Answer: D**

**Question 92**

**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.**

**Has anyone from our team answered your question?**

- A** Did someone from our team answer to your question?
- B** Is your question been answered by someone from our team?
- C** Has your question been answered by anyone from our team?
- D** Have your question been answered by anyone from our team?

**Answer: C**

**Question 93**

**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'.**

**This town has an ancient temple(A)/and beautiful waterfall(B)/so many tourists come here.(C)/No error(D)**

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

**Answer: B**

**Question 94**

**Select the synonym of cheeky**

- A** nervous
- B** aghast
- C** brash
- D** startled

**Answer: C**

**Question 95**

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

the conclusion that can be drawn from something although it is not explicitly stated

- A illustration
- B elucidation
- C implication
- D explication

**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 against the number given out of the four alternatives.

\_\_\_\_(1)\_\_\_\_ it became difficult to empirically prove that children \_\_\_\_ (2) \_\_\_\_ better in private schools, the attack \_\_\_\_ (3) \_\_\_\_ a new weapon per unit cost of learning outcomes. Most of the learning outcome researches almost \_\_\_\_ (4) \_\_\_\_ fail to understand the entire \_\_\_\_ (5) \_\_\_\_ of education in any depth and reduces it to learning of so-called 3Rs for economic purposes.

**Question 96**

(1)

- A So
- B Therefore
- C When
- D Then

**Answer: C**

**Question 97**

(2)

- A learn
- B study

**C** educate

**D** train

**Answer: A**

**Question 98**

**(3)**

**A** invents

**B** had invented

**C** is inventing

**D** invented

**Answer: A**

**Question 99**

**(4)**

**A** sometimes

**B** always

**C** often

**D** rarely

**Answer: B**

**Question 100**

**(5)**

**A** purpose

**B** target

**C** scheme

**D** ambition

**Answer: A**

# SSC CHSL 8 Feb 2017 Evening Shift

## Reasoning

### Instructions

For the following questions answer them individually

### Question 1

Choose the related word/letters/number from the given alternatives. Horse : Neigh :: Elephant : ?

- A Quack
- B Trumpet
- C Mew
- D Grunt

**Answer:** B

### Explanation:

Expression = Horse : Neigh :: Elephant : ?

The second is the sound made by the first. Sound made by horse is neigh, similarly an elephant trumpets.

=> Ans - (B)

### Question 2

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

**GH : 78 :: ? : 1819**

- A HG
- B LM
- C RS
- D IJ

**Answer:** C

### Explanation:

Expression = GH : 78 :: ? : 1819

Numerical values of two alphabets are concatenated.

Eg :- G = 7, H = 8  $\equiv$  78

Similarly, 18, 19  $\equiv$  RS

=> Ans - (C)

### Question 3

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

CAR : RAC :: TYRE : ?

A RUBBER

B ERTY

C ERYT

D STEEL

**Answer:** C

#### **Explanation:**

Expression = CAR : RAC :: TYRE : ?

The pattern followed is that the word is written in *reverse* order, i.e. first letter at last position, second at second last and so on.

Similarly, reverse of TYRE : **ERYT**

=> Ans - (C)

### Question 4

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

12 : 60 :: 28 : ?

A 160

B 150

C 145

D 140

**Answer:** D

#### **Explanation:**

Expression = 12 : 60 :: 28 : ?

The pattern followed is =  $x : 5x$

Eg :-  $12 : 5 \times 12 = 12 : 60$

Similarly,  $5 \times 28 = 140$

=> Ans - (D)

### Question 5

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

- A Sirius
- B Proximacentauri
- C Deimos
- D Alpha centauri

**Answer: C**

#### **Explanation:**

Deimos is a natural satellite, all others are stars, hence Deimos is the odd one out.

=> Ans - (C)

### Question 6

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

- A PON
- B SRQ
- C XYZ
- D VUT

**Answer: C**

#### **Explanation:**

(A) : P (-1 letter) = O (-1 letter) = N

(B) : S (-1 letter) = R (-1 letter) = Q

(C) : X (+1 letter) = Y (+1 letter) = Z

(D) : V (-1 letter) = U (-1 letter) = T

=> Ans - (C)

### Question 7

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

- A 1919
- B 5656
- C 6761

D 7760

**Answer:** B

**Explanation:**

Apart from 5656, sum of digits of other numbers is 20, hence 5656 is the odd one out.

=> Ans - (B)

**Question 8**

**Choose the odd word/letters/number/number pair from the given alternatives.**

A 2890

B 3375

C 1728

D 1331

**Answer:** A

**Explanation:**

$3375 = (15)^3$ ,  $1728 = (12)^3$  and  $1331 = (11)^3$ , 2890 is not a perfect cube number, hence 2890 is the odd one out.

=> Ans - (A)

**Question 9**

**A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series. Double, Triple, Quadruple, ?**

A Quintuple

B Nonuple

C Sextuple

D Octuple

**Answer:** A

**Explanation:**

Successive series of number of sides is given.

= Double -> Triple -> Quadruple -> Quintuple

=> 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. AC, EG, ?, MO

A IK

B IJ

C IL

D IM

**Answer:** A

#### **Explanation:**

Expression : AC, EG, ?, MO

The pattern followed in each letter of the terms is :

1st letter : A (+4 letters) = E (+4 letters) = I (+4 letters) = M

2nd letter : C (+4 letters) = G (+4 letters) = K (+4 letters) = O

Thus, missing term = **IK**

=> 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.

?, WX, AB, FG

A TU

B XW

C PQ

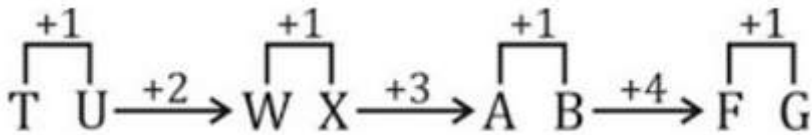
D UV

**Answer:** A

#### **Explanation:**

Expression : ?, WX, AB, FG

The pattern followed is :



Thus, missing term = TU

=> Ans - (A)

### Question 12

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

30, 60, 360, 3600, ?

A 48500

B 50500

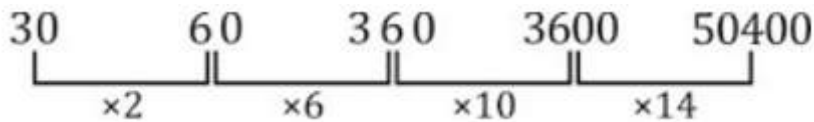
C 50400

D 40800

Answer: C

Explanation:

Expression : 30, 60, 360, 3600, ?



Thus, missing number = 50400

=> Ans - (C)

### 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.

Statement:

(I) Women generally prefer window shopping.

(II) Males generally are not fond of window shopping and they feel that it is sheer waste of time.

Conclusions:

(I) Shopping behavior is different for males and females.

(II) If males go for window shopping, they don't utilize much time is selecting a product.

A Only conclusion II follows

B Conclusion I and II both follow

C Neither I nor II follow

**D** Only conclusion I follows

**Answer: D**

#### Question 14

Five boys A, B, C, D and E are standing in a line. A is taller than E but shorter than D. B is shorter than E and C is the tallest. Who is in the middle ?

**A** A

**B** C

**C** D

**D** E

**Answer: A**

#### Explanation:

A is taller than E but shorter than D,  $\Rightarrow D > A > E$ .

B is shorter than E,  $\Rightarrow E > B$ .

Also, C is the tallest.

Combining above statements, we get : **C > D > A > E > B**

$\therefore$  A is in the middle.

$\Rightarrow$  Ans - (A)

#### Question 15

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

**i. Treadmill**

**ii. Treason**

**iii. Treacherous**

**iv. Tread**

**A** ii, iii, iv, i

**B** iii, iv, ii, i

**C** iii, iv, i, ii

**D** i, ii, iii, iv

**Answer: C**

#### Explanation:

As per the order of dictionary :

= Treacherous -> Tread -> Treadmill -> Treason

≡ iii, iv, i, ii

=> Ans - (C)

### Question 16

In a certain code language, "RIVER" is written as "12351" and "RED" is written as "156". How is "DRIVER" written in that code language?

A 612311

B 612531

C 621351

D 612351

**Answer: D**

### Explanation:

The codes for each letter is given :

D -> 6

R -> 1

I -> 2

V -> 3

E -> 5

R -> 1

Thus, DRIVER : **612351**

=> Ans - (D)

### Question 17

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

49	169	484
81	144	625
16	25	?

A 37

B 47

C 48

D 25

Answer: B

**Explanation:**

The logic followed here is,

$$\sqrt{49} + \sqrt{81} \Rightarrow 7 + 9 = 16,$$

$$\sqrt{169} + \sqrt{144} \Rightarrow 13 + 12 = 25,$$

$$\sqrt{484} + \sqrt{624} \Rightarrow 22 + 25 = 47.$$

Hence, option B is the correct answer.

**Question 18**

If "+" means "minus", "x" means "divided by", "÷" means "plus" and "-" means "multiplied by", then  $126 \times 14 + 7 - 3 \div 2 = ?$

A -10

B -12

C -17

D -41

Answer: A

**Explanation:**

Expression =  $126 \times 14 + 7 - 3 \div 2 = ?$

$$\equiv 126 \div 14 - 7 \times 3 + 2$$

$$= 9 - 21 + 2$$

$$= 11 - 21 = -10$$

=> Ans - (A)

**Question 19**

In the following question, which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?

d\_ba\_c\_a\_cb\_

A cdbda

B cdbad

C bdacd

D abdca

Answer: A

**Explanation:**

The pattern followed is that in groups of 4, the term 'dcba' is repeated.

= dcba dcba dcba

=> Ans - (A)

**Question 20**

Neeraj is facing north, then he turns 45 degree right and goes 25 m, then turns in south-east direction to move 25 m and from there 25 m to east. In which direction/place is he from his original place?

A North

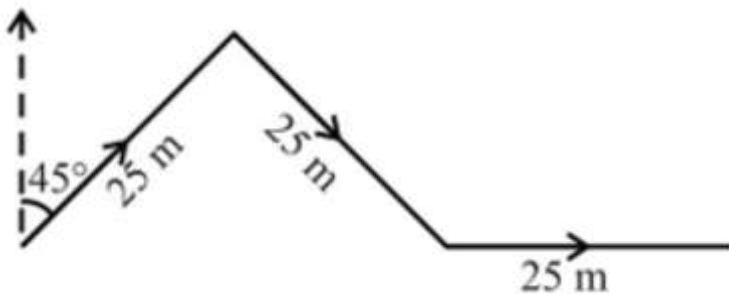
B East

C West

D South

Answer: B

**Explanation:**



Neeraj is facing north, then he turns 45 degree right and goes 25 m towards north east, then turns in south-east direction to move 25 m and finally 25 m to the east.

Thus, he is east from his original place.

=> 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, 'E' can be represented by 02, 11, etc. and can be represented by 65, 56 etc. Similarly, you have to identify the set for the word 'EAGER'.

	0	1	2	3	4
0	S	T	E	D	B
1	A	E	O	F	A
2	E	T	P	A	N
3	D	G	A	S	M
4	G	A	Q	W	1

	5	6	7	8	9
5	F	G	M	R	C
6	G	N	R	K	L
7	A	R	Y	J	F
8	R	B	W	G	Y
9	S	V	Q	H	T

- A 02,10,65,11,68
- B 02,10,65,87,85
- C 02,10,65,11,85
- D 02,10,65,59,85

**Answer:** C

#### **Explanation:**

(A) : 02,10,65,11,68 = EAGEK

(B) : 02,10,65,87,85 = EAGWR

(C) : 02,10,65,11,85 = **EAGER**

(D) : 02,10,65,59,85 = EAGCR

=> Ans - (C)

### Question 22

Introducing a boy Ankit said, "He is the son of daughter of my grandfather's son". How is that boy related to Ankit?

- A Cousin
- B Brother

C Father-in-law

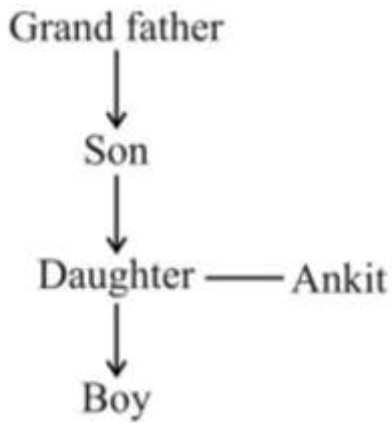
D Nephew

Answer: D

**Explanation:**

Daughter of Ankit's grandfather's son = Ankit's sister

Relation is :

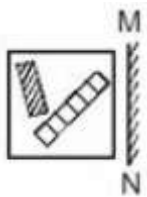


Thus, the boy is Ankit's nephew.

=> 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: B

Question 24

Identify the diagram that best represents the relationship among the given classes. Earth, Saturn, Planet, Star



Answer: C

Explanation:

Earth and Saturn are both planets but are different (hence do not intersect each other), and star is a different body in solar system.

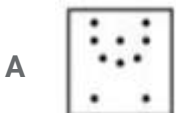
Thus, the venn diagram that best describes above relationship is :

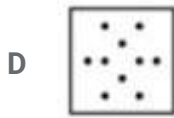
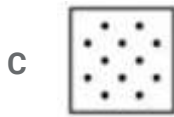
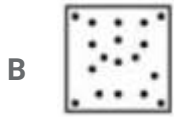


=> Ans - (C)

Question 25

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





**Answer: C**

## General Awareness

### Instructions

For the following questions answer them individually

### Question 26

**Which drug is used as an Anti-Anxiety drug?**

- A** Warfarin
- B** Diazepam
- C** Latanoprost
- D** Hydralazine

**Answer: B**

### Question 27

**Ficus benghalensis is the scientific name of \_\_\_\_\_**

- A** Banyan
- B** Pineapple
- C** Babul
- D** Tulsi

**Answer: A**

**Question 28**

**Equus burchellii is the scientific name of \_\_\_\_\_**

- A** Horse
- B** Zebra
- C** Buffalo
- D** Ass

**Answer: B**

**Question 29**

**Atomic number of which of the following elements is greater than that of Copper?**

- A** Iron
- B** Chromium
- C** Zinc
- D** Manganese

**Answer: C**

**Question 30**

**Vacuum Tubes were used by \_\_\_\_\_ Generation of Computers.**

- A** First
- B** Second
- C** Third
- D** Fourth

**Answer: A**

**Question 31**

**Ghumura is a folk dance of \_\_\_\_\_**

- A Odisha
- B Andhra Pradesh
- C Jammu & Kashmir
- D Maharashtra

**Answer: A**

### Question 32

7 workers work in a printing press. Each gets paid Rs 450 per day. The 8th worker demands Rs 500 per day. If this worker is hired then all other workers must be paid Rs 500. The marginal resource (labour) cost of the 8th worker is .

- A Rs 50
- B Rs 850
- C Rs 400
- D Rs 100

**Answer: B**

### Question 33

An increase of 1% per annum in the rate of growth of the money supply will increase inflation in the long run by .

- A Zero percent
- B One percent
- C 0.5 percent
- D More than one percent

**Answer: B**

### Question 34

Which of the following is false with reference to a photo-voltaic cell?

- A It is another name as solar cell

- B** It can be used as infra-red detectors
- C** It can store light energy in the form of electrical energy
- D** It converts electric energy into light energy

**Answer: D**

**Question 35**

**Methane an air pollutant is produced \_\_\_\_\_**

- A** by action of ultraviolet light on nitrogenous compounds.
- B** as a by-product of manufacturing ammoniacal fertilizers
- C** by burning of coal in insufficient air
- D** by digestion of food by animals

**Answer: D**

**Question 36**

**In the National Flag of India, Ashoka Chakra is a \_\_\_\_\_spoked wheel.**

- A** 8
- B** 12
- C** 16
- D** 24

**Answer: D**

**Question 37**

**The longest day of the year in the Northern Hemisphere occur on\_\_\_\_\_**

- A** 20th May
- B** 21st June
- C** 20th July
- D** 21st August

**Answer: B**

**Question 38**

**Chandragupta Maurya was an ardent follower of \_\_\_\_\_**

- A** Sikhism
- B** Jainism
- C** Buddhism
- D** Jewism

**Answer: B**

**Question 39**

**The First Battle of Panipat in 1526 was fought between the the Lodi Empire and .**

- A** Babur
- B** Humayun
- C** Akbar
- D** Aurangzeb

**Answer: A**

**Question 40**

**Who Invented Ceiling fan?**

- A** Lloyd Groff Copeman
- B** Bartolomeo Cristofori
- C** Leonardo da Vinci
- D** Philip Diehl

**Answer: D**

**Question 41**

**Rate of work done is .**

- A Energy
- B Power
- C Momentum
- D Impulse

**Answer: B**

#### **Question 42**

**What is the unit of the physical quantity "Young's modulus"?**

- A newton
- B erg
- C joule
- D pascal

**Answer: D**

#### **Question 43**

**Pradhan Mantri Mudra Yojana was announced under the leadership of \_\_\_\_\_**

- A Jawaharlal Nehru
- B Indira Gandhi
- C Narendra Modi
- D Manmohan Singh

**Answer: C**

#### **Question 44**

**The number of parliamentary seats (Lok Sabha) of Punjab is \_\_\_\_\_**

- A 2
- B 13
- C 20

**D** 25

**Answer: B**

**Question 45**

**Who has the record of highest number of Gold Medals in the history of Olympics?**

**A** Usain Bolt

**B** Michael Phelps

**C** Larisa Latynina

**D** Ian Thorpe

**Answer: B**

**Question 46**

**Who is the author of "Gently Falls: The Bakula"?**

**A** Amitav Ghosh

**B** Mitali Meelan

**C** Ravinder Singh

**D** Sudha Murty

**Answer: D**

**Question 47**

**Which fort is also known as the Golden Fort?**

**A** Chittorgarh

**B** Kumbhalgarh

**C** Ranthambore

**D** Jaisalmer

**Answer: D**



**Question 48**

**Highest Civilian Honour received by Shabana Azmi is**

- A Padma Shri
- B Padma Bhushan
- C Padma Vibhushan
- D Bharat Ratna

**Answer: C**

**Question 49**

**Which of the following is false?**

- A Hydrogen atom is roughly a third of the mass of tritium
- B Deuterium is called heavy hydrogen
- C Deuterium atom has 1 neutron
- D Protium is the rarest isotope of hydrogen

**Answer: D**

**Question 50**

**Which Indian lake is renowned as the Lagoon lake of India?**

- A Kanjia Lake
- B Agra Lake
- C Mansar Lake
- D Chilika lake

**Answer: D**

### Instructions

For the following questions answer them individually

### Question 51

What is the LCM (least common multiple) of 57 and 93?

A 1767

B 1567

C 1576

D 1919

**Answer:** A

### Explanation:

Prime factorization of 57 =  $3 \times 19$

Prime factorization of 93 =  $3 \times 31$

=> L.C.M. of 57 and 93 =  $3 \times 19 \times 31$

=  $57 \times 31 = 1767$

=> Ans - (A)

### Question 52

If  $\sec -5\pi/4 = x$ , then the value of x is

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

B  $-\sqrt{2}$

C  $-1$

D  $\sqrt{3}$

**Answer:** B

### Explanation:

Expression :  $\sec -5\pi/4 = x$

$\therefore \sec(-x) = \sec(x)$

=  $\sec\left(\frac{-5\pi}{4}\right) = \sec\left(\frac{5\pi}{4}\right)$

=  $\sec\left(\pi + \frac{\pi}{4}\right) = -\sec\left(\frac{\pi}{4}\right)$

=  $-\sqrt{2}$

=> Ans - (B)

### Question 53

Marked price of an item is Rs 500. On purchase of 2 items discount is 8%, on purchase of 3 items discount is 16%. Radha buys 5 items, what is the effective discount?

- A 20.4 percent
- B 23.25 percent
- C 12.8 percent
- D 35 percent

**Answer: C**

#### Explanation:

Marked price of item = Rs. 500

=> Marked price of 2 items =  $2 \times 500 = \text{Rs. } 1000$

Amount saved on buying 2 items =  $\frac{8}{100} \times 1000 = \text{Rs. } 80$

Marked price of 3 items =  $3 \times 500 = \text{Rs. } 1500$

Amount saved on buying 3 items =  $\frac{16}{100} \times 1500 = \text{Rs. } 240$

Thus, on buying 5 items, total amount saved =  $80 + 240 = \text{Rs. } 320$

Total marked price of 5 items =  $5 \times 500 = \text{Rs. } 2500$

$\therefore$  Effective discount =  $\frac{320}{2500} \times 100$

=  $\frac{320}{25} = 12.8\%$

=> Ans - (C)

### Question 54

If  $\tan(A/2) = x$ , then the value of  $x$  is

- A  $\sin A / (1 - \cos A)$
- B  $\sin A / (1 + \cos A)$
- C  $\sqrt{[\sin A / (1 + \cos A)]}$
- D  $\sqrt{[\sin A / (1 - \cos A)]}$

**Answer: B**

#### Explanation:

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

=>  $\cos(2\theta) = (1 - \sin^2\theta) - \sin^2\theta$

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

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

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

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

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

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

$$\text{Similarly, } \Rightarrow \cos\left(\frac{A}{2}\right) = \sqrt{\frac{(1 + \cos A)}{2}}$$

Now, to find :  $\tan\left(\frac{A}{2}\right)$

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

$$= \sqrt{\frac{(1 - \cos A)}{2}} \div \sqrt{\frac{(1 + \cos A)}{2}}$$

$$= \sqrt{\frac{(1 - \cos A)}{2}} \times \sqrt{\frac{2}{(1 + \cos A)}}$$

$$= \sqrt{\frac{1 - \cos A}{1 + \cos A}}$$

$$= \sqrt{\frac{1 - \cos A}{1 + \cos A} \times \frac{1 + \cos A}{1 + \cos A}}$$

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

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

$\Rightarrow$  Ans - (B)

### Question 55

If  $2\sec A - (1 + \sin A)/\cos A = x$ , then the value of  $x$  is

A  $\operatorname{cosec} A / (1 + \sin A)$

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

C  $\cos A (1 + \sin A)$

D  $\operatorname{cosec} A (1 + \sin A)$

**Answer:** B

### Explanation:

Expression :  $2\sec A - (1 + \sin A)/\cos A = x$

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

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

Multiplying both numerator and denominator by  $(1 + \sin A)$

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

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

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

=> Ans - (B)

### Question 56

The mean of marks secured by 60 students in division A of class X is 64, 40 students of division B is 60 and that of 60 students of division C is 58. Find the mean of marks of the students of three divisions of Class X.

A 60.05

B 59.35

C 62.15

D 60.75

**Answer: D**

### Explanation:

Total marks secured by 60 students in division A =  $60 \times 64 = 3840$

Total marks secured by 40 students in division B =  $40 \times 60 = 2400$

Total marks secured by 60 students in division C =  $60 \times 58 = 3480$

=> Mean of marks of the students of three divisions of Class X =  $\frac{(3840+2400+3480)}{(60+40+60)}$

$$= \frac{9720}{160} = 60.75$$

=> Ans - (D)

### Question 57

The difference between simple and compound interests compounded annually on a certain sum of money for 2 years at 5% per annum is Rs 45. The sum is

A Rs 36000

B Rs 72000

C Rs 18000

D Rs 54000

**Answer: C**

**Explanation:**

Let the given sum = Rs.  $100x$

Rate of interest = 5% and time period = 2 years

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

$$= 100x\left[\left(1 + \frac{5}{100}\right)^2 - 1\right]$$

$$= 100x\left[\left(\frac{21}{20}\right)^2 - 1\right] = 100x\left(\frac{441-400}{400}\right)$$

$$= 100x \times \frac{41}{400} = \frac{41x}{4}$$

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

$$= \frac{100x \times 5 \times 2}{100} = 10x$$

$$\Rightarrow \text{Difference between simple and compound interests} = \frac{41x}{4} - 10x = 45$$

$$\Rightarrow \frac{41x - 40x}{4} = 45$$

$$\Rightarrow x = 4 \times 45 = 180$$

$\therefore$  Value of given sum =  $100 \times 180 = \text{Rs.}18,000$

$\Rightarrow$  Ans - (C)

**Question 58**

The price of an article is cut by 33%, to restore to its original value, the new price must be increased by

- A 33 percent
- B 49.25 percent
- C 24.81 percent
- D 41.25 percent

**Answer:** B

**Explanation:**

Let the original price of the article = Rs. 100

$$\text{If the price is cut by 33\%,} \Rightarrow \text{New price} = \frac{100-33}{100} \times 100 = \text{Rs.}67$$

$$\text{To restore to its original value the new price must be increased by} = \frac{100-67}{67} \times 100$$

$$= \frac{3300}{67} \approx 49.25\%$$

$\Rightarrow$  Ans - (B)

**Question 59**

The third proportional of two numbers 9 and 24 is

A 39

B 48

C 72

D 64

**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

The given numbers are 9 and 24

$$\Rightarrow (24)^2 = 9 \times c$$

$$\Rightarrow c = \frac{24 \times 24}{9}$$

$$\Rightarrow c = 8 \times 8 = 64$$

$\Rightarrow$  Ans - (D)

**Question 60**

**The total surface area of a hemisphere is 166.32 sq cm, find its radius?**

A 4.2 cm

B 8.4 cm

C 1.4 cm

D 2.1 cm

**Answer: A**

**Explanation:**

Let radius of hemisphere =  $r$  cm

$$\text{Total surface area of hemisphere} = 3\pi r^2 = 166.32$$

$$\Rightarrow r^2 = \frac{166.32}{3\pi}$$

$$\Rightarrow r^2 = 55.44 \times \frac{7}{22}$$

$$\Rightarrow r^2 = 2.52 \times 7 = 17.64$$

$$\Rightarrow r = \sqrt{17.64} = 4.2 \text{ cm}$$

$\Rightarrow$  Ans - (A)

### Question 61

$\Delta ABC$  is similar to  $\Delta DEF$ . Length of AB is 18 cm and length of the corresponding side DE is 10 cm. What is the ratio of Perimeter of  $\Delta ABC$  : Perimeter of  $\Delta DEF$ ?

- A 5:9
- B 9:5
- C 81:25
- D 25:81

**Answer:** B

#### **Explanation:**

It is given that  $\Delta ABC \sim \Delta DEF$

Also, length of AB = 18 cm and length of the corresponding side DE = 10 cm

=> Ratio of Perimeter of  $\Delta ABC$  : Perimeter of  $\Delta DEF$  = Ratio of corresponding sides = AB : DE

$$= \frac{18}{10} = \frac{9}{5}$$

$\therefore$  The required ratio is 9 : 5

=> Ans - (B)

### Question 62

Two cars travel from city A to city B at a speed of 36 and 48 km/hr respectively. If one car takes 3 hours lesser time than the other car for the journey, then the distance between City A and City B is

- A 518 km
- B 432 km
- C 648 km
- D 346 km

**Answer:** B

#### **Explanation:**

Let the distance between City A and City B =  $d$  km

Speed of first car = 36 km/hr and speed of second car = 48 km/hr

Let time taken by first car =  $t$  hrs and time taken by second car =  $(t - 3)$  hrs

Using, speed = distance/time for first car :

$$\Rightarrow \frac{d}{t} = 36$$

$$\Rightarrow d = 36t \text{ -----(i)}$$



For second car,  $\Rightarrow \frac{d}{t-3} = 48$

Substituting value of  $d$  from equation (i), we get :

$$\Rightarrow 36t = 48t - 144$$

$$\Rightarrow 48t - 36t = 12t = 144$$

$$\Rightarrow t = \frac{144}{12} = 12 \text{ hrs}$$

From equation (i),  $\Rightarrow d = 36 \times 12 = 432 \text{ km}$

$\Rightarrow$  Ans - (B)

### Question 63

A shopkeeper by selling 13 Titan watches, earns a profit equal to the selling price of 3 Titan watches. His profit percentage is

A 30 percent

B 23.0 percent

C 46 percent

D 16 percent

**Answer:** A

### Explanation:

Let cost price of a watch =  $Rs.x$

Selling price of a watch =  $Rs.y$

$\Rightarrow$  Selling price of 3 watches =  $Rs.3y$

According to ques,  $\Rightarrow 13(y - x) = 3y$

$$\Rightarrow 13y - 13x = 3y$$

$$\Rightarrow 10y = 13x$$

$$\Rightarrow \frac{x}{y} = \frac{10}{13}$$

Let Cost price,  $x = 10$  and selling price,  $y = 13$

$$\therefore \text{Profit \%} = \frac{y-x}{x} \times 100$$

$$= \frac{13-10}{10} \times 100$$

$$= 3 \times 10 = 30\%$$

$\Rightarrow$  Ans - (A)

**Question 64**

The line passing through  $(-2,5)$  and  $(6,b)$  is perpendicular to the line  $20x + 5y = 3$ . Find  $b$ ?

A -7

B 4

C 7

D -4

**Answer: C**

**Explanation:**

Slope of line having equation :  $ax + by + c = 0$  is  $-\frac{a}{b}$

$\Rightarrow$  Slope of line  $20x + 5y = 3$  is  $-\frac{20}{5} = -4$

Slope line passing through  $(-2,5)$  and  $(6,b) = \frac{b-5}{6+2} = \frac{(b-5)}{8}$

Also, product of slopes of two perpendicular lines is -1

$\Rightarrow \frac{(b-5)}{8} \times -4 = -1$

$\Rightarrow b - 5 = \frac{8}{4} = 2$

$\Rightarrow b = 2 + 5 = 7$

$\Rightarrow$  Ans - (C)

**Question 65**

Find the sum of interior angles of a dodecagon?

A  $1620^\circ$

B  $1800^\circ$

C  $1440^\circ$

D  $1260^\circ$

**Answer: B**

**Explanation:**

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

Number of sides of dodecagon,  $n = 12$

$\Rightarrow$  Sum of interior angles =  $(12 - 2) \times 180^\circ$

=  $10 \times 180 = 1800^\circ$

$\Rightarrow$  Ans - (B)

### Question 66

A does 80% of a work in 20 days. He then calls in B and they together finish the remaining work in 4 days. How long B alone would take to do the whole work?

- A 12.5 days
- B 100 days
- C 22.5 days
- D 35 days

**Answer:** B

#### **Explanation:**

Let total work to be done = 100 units

Work done by A in 20 days =  $\frac{80}{100} \times 100 = 80$  units

A's efficiency =  $\frac{80}{20} = 4$  units/day

Remaining work =  $100 - 80 = 20$  units

Let B's efficiency =  $x$  units/day

Now, A and B complete remaining work in 4 days

$$\Rightarrow (4 + x) \times 4 = 20$$

$$\Rightarrow 4 + x = \frac{20}{4} = 5$$

$$\Rightarrow x = 5 - 4 = 1$$

$\therefore$  Time taken by B to complete the whole work alone =  $\frac{100}{1} = 100$  days

$\Rightarrow$  Ans - (B)

### Question 67

The area of a circle is 616 sq cm, find its circumference?

- A 44 cm
- B 88 cm
- C 22 cm
- D 176 cm

**Answer:** B

#### **Explanation:**

Let the radius of circle =  $r$  cm

$$\text{Area of circle} = \pi r^2 = 616$$

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

$$\Rightarrow (r)^2 = \frac{616 \times 7}{22} = 196$$

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

$\therefore$  Circumference of circle =  $2\pi r$

$$= 2 \times \frac{22}{7} \times 14$$

$$= 44 \times 2 = 88 \text{ cm}$$

$\Rightarrow$  Ans - (B)

### Question 68

If  $3x - 8(2 - x) = -19$ , then the value of  $x$  is

A  $-3/11$

B  $-33/11$

C  $-3/5$

D  $-33/5$

Answer: A

### Explanation:

$$\text{Expression : } 3x - 8(2 - x) = -19$$

$$\Rightarrow 3x - 16 + 8x = -19$$

$$\Rightarrow 11x = 16 - 19 = -3$$

$$\Rightarrow x = \frac{-3}{11}$$

$\Rightarrow$  Ans - (A)

### Question 69

If  $x - y = 6$  and  $xy = 40$ , then find  $x^2 + y^2$

A 116

B 80

C 89

D 146

Answer: A

**Explanation:**

Given :  $(x - y) = 6$  and  $xy = 40$

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

$\Rightarrow (6)^2 = (x^2 + y^2) - (2 \times 40)$

$\Rightarrow (x^2 + y^2) = 36 + 80 = 116$

$\Rightarrow$  Ans - (A)

**Question 70**

Product of digits of a 2-digit number is 27. If we add 54 to the number, the new number obtained is a number formed by interchange of the digits. Find the number.

A 39

B 93

C 63

D 36

**Answer:** A

**Explanation:**

Let the unit's digit of the number be  $y$  and ten's digit be  $x$

$\Rightarrow$  Number =  $10x + y$

Product of digits =  $x \times y = 27$  -----(i)

According to question,  $\Rightarrow 10x + y + 54 = 10y + x$

$\Rightarrow 9y - 9x = 54$

$\Rightarrow y - x = \frac{54}{9} = 6$  -----(ii)

Solving equation (i) and (ii), we get :  $x = 3$  and  $y = 9$

$\therefore$  Number = 39

$\Rightarrow$  Ans - (A)

**Question 71**

If  $2x - 3(2x - 2) > x - 1 < 2 + 2x$ ; then  $x$  can take which of the following values?

A 2

B -2

C 4

D -4

**Answer: B**

**Explanation:**

Expression 1 :  $x - 1 < 2 + 2x$

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

$$\Rightarrow x > -3 \text{ -----(i)}$$

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

$$\Rightarrow -4x + 6 > x - 1$$

$$\Rightarrow 4x + x < 6 + 1$$

$$\Rightarrow x < \frac{7}{5} \text{ -----(ii)}$$

Combining inequalities (i) and (ii), we get :  $-3 < x < \frac{7}{5}$

Thus, only value that  $x$  can take among the options = -2

$\Rightarrow$  Ans - (B)

**Question 72**

**Refer the below table and the following questions**

	Number of Employees	Annual Salary (in lakhs)	Bonus as percent of annual salary
Manager	3	30	30%
Executive	8	16	20%
Trainee	4	2	20%

**What is average bonus in rupees ?**

A 5419995

B 160000

C 361333

D 126000

**Answer: C**

**Explanation:**

Total bonus of managers (in lakh) =  $3 \times 30 \times \frac{30}{100} = 27$  lakhs

Total bonus of executive (in lakh) =  $8 \times 16 \times \frac{20}{100} = 25.6$  lakhs

Total bonus of trainee (in lakh) =  $4 \times 2 \times \frac{20}{100} = 1.6$  lakhs

$$\Rightarrow \text{Average bonus in rupees} = \frac{(27+25.6+1.6)}{(3+8+4)}$$

$$= \frac{54.2}{15} = 3.61333 \text{ lakhs} = \text{Rs. } 3,61,333$$

$\Rightarrow$  Ans - (C)

### Question 73

Read the below data table and answer the following questions

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

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

A 2011 & 2012

B 2013 & 2015

C 2011 & 2014

D 2014 & 2015

**Answer:** A

#### **Explanation:**

Total exports from the three companies together in :

$$2011 = 3000 + 1000 + 4000 = 8000$$

$$2012 = 5000 + 1000 + 2000 = 8000$$

$$2013 = 4000 + 1000 + 2000 = 7000$$

$$2014 = 5000 + 2000 + 2000 = 9000$$

$$2015 = 5000 + 2000 + 3000 = 10000$$

Clearly, total exports in 2011 and 2012 are equal to 8000

$\Rightarrow$  Ans - (A)

### Question 74

Read the below data table and answer the following questions

Year	Profit or Loss in crore
2011	-10
2012	5
2013	10
2014	-15
2015	-5

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

- A Profit of Rs 15 crores
- B Loss of Rs 25 crores
- C Loss of Rs 15 crores
- D Profit of Rs 25 crores

**Answer: C**

#### Explanation:

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

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

$$= 15 - 30 = -15$$

Since, it is negative, thus loss of Rs. 15 crore

=> Ans - (C)

### Question 75

Read the below data table and answer the following questions

India's Exports in 2015	Value in million US
Jewellery	675
Software	500
Cotton	525
Steel	575
Electronics	725

Jewellery was what percent of total exports

- A 25 percent
- B 27.5 percent
- C 22.5 percent
- D 20 percent



**Answer: C**

**Explanation:**

Value in millions of Jewelry = 675

Total exports = 675 + 500 + 525 + 575 + 725 = 3000

=> % of Jewelry in total exports =  $\frac{675}{3000} \times 100$

=  $\frac{675}{30} = 22.5\%$

=> Ans - (C)

## English

**Instructions**

For the following questions answer them individually

**Question 76**

**Select the word with the correct spelling.**

- A brooches
- B linoleam
- C limekilne
- D cherubick

**Answer: A**

**Question 77**

**In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/phrase. An outline representing or bounding the shape or form of something.**

- A tracery
- B contour
- C doodle
- D pattern

**Answer: B**

### Question 78

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'.

Soon as he(A)/saw the policeman,(B)/ he ran away.(C)/No error(D)

A A

B B

C C

D D

Answer: A

### Question 79

Rearrange the parts of the sentence in correct order.

We are told that its

P-Public Distribution System

Q-creating a functional

R-sole purpose is the noble goal of

A QRP

B RQP

C PRQ

D PQR

Answer: B

### Question 80

Select the word with the correct spelling.

A lammented

B scabbard

C ordenance

D synaptick

Answer: B

### Question 81

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

Gokul said to Sumit, "Why did not you attend the meeting yesterday?"

- A Gokul asked Sumit why he did not attend the meeting the day before.
- B Gokul asked Sumit why he had not attended that meeting yesterday.
- C Gokul asked Sumit why he had not attended the meeting the day before.
- D Gokul asked Sumit why he did not attend that meeting yesterday.

**Answer: C**

### Explanation:

'Yesterday' should be changed to 'the day before'. The given sentence is in the simple past tense. Therefore, the reported speech must be in the past perfect tense. Only option C satisfies these 2 conditions and hence, option C is the right answer.

### Question 82

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

to lose one's head

- A to lose respect within your community
- B to become complacent and gradually worsen your performance
- C to become confused or overly emotional about someone or something
- D to lose sense or start behaving like a lunatic

**Answer: C**

### Question 83

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

A person famous and respected within a particular sphere.

- A eminent
- B obscure
- C despotic

D imperative

Answer: A

#### Question 84

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.  
We shall invite Suresh.

A Suresh would be invited by us.

B Suresh would have been invited by us.

C Suresh will be invited by us.

D Suresh will have been invited by us.

Answer: C

#### Question 85

Select the antonym of 'amenable'

A responsive

B pliable

C docile

D unsusceptible

Answer: D

#### Question 86

Select the synonym of  
to subsume

A to bate

B to obviate

C to preclude

D to incorporate

Answer: D

**Question 87**

**Improve the bracketed part of the sentence**  
I prefer black coffee (over) cappuccino.

- A rather than
- B to
- C instead of
- D no improvement

**Answer: B**

**Question 88**

**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'.  
You must not(A)/look down into(B)/parents' advice.(C)/No error(D)**

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

**Answer: B**

**Question 89**

**Improve the bracketed part of the sentence**  
The priest agreed (to answer on) questions on theology.

- A to answer
- B for answering
- C to answer for
- D no improvement

**Answer: A**

**Question 90**

**Select the synonym of  
to lash**

- A to endear
- B to fondle
- C to chastise
- D to snuggle

**Answer: C**

**Question 91**

**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.**

**Arun's financial \_\_\_\_\_ has helped him earn a fortune on the stock market.**

- A dexterity
- B readiness
- C expertise
- D knack

**Answer: C**

**Question 92**

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

**Fuel suppliers will \_\_\_\_\_ the national oil shortage by raising prices to increase their bottom lines.**

- A use
- B misuse
- C venture
- D exploit

**Answer: D**

**Question 93**

**Select the antonym of to muster**

- A to convocate
- B to rally
- C to estrange
- D to aggregate

**Answer: C**

**Question 94**

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

**head over heels**

- A to think with head instead of heart
- B to run away from an unpleasant situation
- C to take a nasty fall
- D to be madly in love

**Answer: D**

**Question 95**

**Rearrange the parts of the sentence in correct order.**

**So, increasingly,**

**P-paying to provide revenues Q-for the Central government R-the poor have been**

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

**Answer: A**

**Question 96**

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.

The scenario \_\_\_\_\_ dramatically today. We have the \_\_\_\_\_ of powerful Internet monopolies that are much bigger \_\_\_\_\_ the telcos. Not surprisingly, these companies now see the \_\_\_\_\_ of monopoly. They would like to combine with telcos to create monopolies for their platforms, ensuring that they control the future of the Internet and freeze their competition \_\_\_\_\_.

The scenario \_\_\_\_\_ dramatically today.

- A change
- B had changed
- C has changed
- D changing

**Answer: C**

**Question 97**

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.

The scenario \_\_\_\_\_ dramatically today. We have the \_\_\_\_\_ of powerful Internet monopolies that are much bigger \_\_\_\_\_ the telcos. Not surprisingly, these companies now see the \_\_\_\_\_ of monopoly. They would like to combine with telcos to create monopolies for their platforms, ensuring that they control the future of the Internet and freeze their competition \_\_\_\_\_.

We have the \_\_\_\_\_ of powerful Internet

- A emerging
- B emerge
- C emergence
- D emergency

**Answer: C**



### Question 98

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.

The scenario \_\_\_\_\_ dramatically today. We have the \_\_\_\_\_ of powerful Internet monopolies that are much bigger \_\_\_\_\_ the telcos. Not surprisingly, these companies now see the \_\_\_\_\_ of monopoly. They would like to combine with telcos to create monopolies for their platforms, ensuring that they control the future of the Internet and freeze their competition \_\_\_\_\_ .  
monopolies that are much bigger \_\_\_\_\_ the telcos

A then

B than

C to

D of

Answer: B

### Question 99

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.

The scenario \_\_\_\_\_ dramatically today. We have the \_\_\_\_\_ of powerful Internet monopolies that are much bigger \_\_\_\_\_ the telcos. Not surprisingly, these companies now see the \_\_\_\_\_ of monopoly. They would like to combine with telcos to create monopolies for their platforms, ensuring that they control the future of the Internet and freeze their competition \_\_\_\_\_.  
Not surprisingly, these companies now see the \_\_\_\_\_ of monopoly.

A virtues

B respectability

C trust

D innocence

Answer: A

### Question 100

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.

The scenario \_\_\_\_\_ dramatically today. We have the \_\_\_\_\_ of powerful Internet monopolies that are much bigger \_\_\_\_\_ the telcos. Not surprisingly, these companies now see the \_\_\_\_\_ of monopoly. They would like to combine with telcos to create monopolies for their platforms, ensuring that they control the future of the Internet and freeze their competition \_\_\_\_\_.  
future of the Internet and freeze their competition \_\_\_\_\_

A off

B about

C in

D out

**Answer: D**