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# SSC CGL Tier 1

## Quant

### Instructions

For the following questions answer them individually

### Question 1

If  $\cot A + \frac{1}{\cot A} = 2$ , then  $\cot^2 A + \frac{1}{\cot^2 A}$  is equal to

- A 4
- B 5
- C 1
- D 2

Answer: D

### Explanation:

$$\text{Expression : } \cot A + \frac{1}{\cot A} = 2$$

Squaring both sides, we get :

$$\Rightarrow \cot^2 A + \frac{1}{\cot^2 A} + 2 \cdot \cot A \cdot \frac{1}{\cot A} = 4$$

$$\Rightarrow \cot^2 A + \frac{1}{\cot^2 A} = 4 - 2 = 2$$

### Question 2

If  $f(x) = \sin^2 x + \operatorname{cosec}^2 x$ , then the minimum value of  $f(x)$  is

- A 1
- B 1.5
- C 2
- D 3

Answer: C

### Explanation:

$$\text{Expression : } f(x) = \sin^2 x + \operatorname{cosec}^2 x$$

$$= (\sin x - \operatorname{cosec} x)^2 + 2 \cdot \sin x \cdot \operatorname{cosec} x$$

$$= (\sin x - \operatorname{cosec} x)^2 + 2$$

Since,  $(\sin x - \operatorname{cosec} x)^2$  is always positive

=> Min value of  $f(x) = 2$

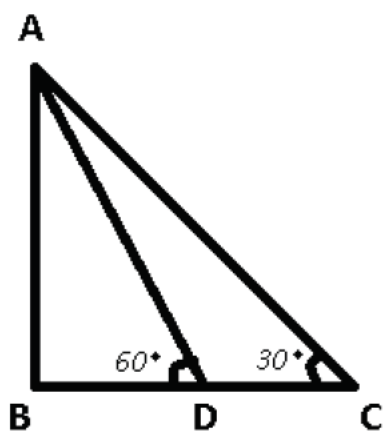
### Question 3

A car is travelling on a straight road leading to a tower. From a point at a distance of 500 m from the tower, as seen by the driver, the angle of elevation of the top of the tower is  $30^\circ$ . After driving towards the tower for 10 seconds, the angle of elevation of the top of the tower as seen by the driver is found to be  $60^\circ$ . Then the speed of the car is

- A 135 km/hr.
- B 110 km/hr.
- C 120 km/hr.
- D 90 km/hr.

Answer: C

Explanation:



$$BC = 500 \text{ m}$$

$$\text{Let } CD \text{ be } x \Rightarrow BD = 500 - x$$

From  $\triangle ABC$

$$\Rightarrow \tan 30 = \frac{AB}{BC}$$

$$\Rightarrow \frac{1}{\sqrt{3}} = \frac{AB}{500}$$

$$\Rightarrow AB = \frac{500}{\sqrt{3}} \text{ m}$$

Now, from  $\triangle ABD$

$$\Rightarrow \tan 60 = \frac{AB}{BD}$$

$$\Rightarrow \sqrt{3} = \frac{\frac{500}{\sqrt{3}}}{500 - x}$$

$$\Rightarrow 3(500 - x) = 500$$

$$\Rightarrow 3x = 1000$$

$$\therefore x = \frac{1000}{3} \text{ metre} = \frac{1}{3} \text{ km}$$

Also, speed of car =  $\frac{\text{distance}}{\text{time}}$

$$= \frac{\frac{1}{3}}{\frac{10}{60+60}} \text{ km/hr}$$

$$= 120 \text{ km/hr}$$

#### Question 4

If  $\theta$  is a positive acute angle and  $\tan \theta + \cot \theta = 2$ , then the value of  $\sec \theta$  is

A  $\frac{1}{\sqrt{2}}$

B  $\sqrt{2}$

C 1

D 0

Answer: B

#### Explanation:

Expression :  $\tan \theta + \cot \theta = 2$

$$\Rightarrow \tan \theta + \frac{1}{\tan \theta} = 2$$

$$\Rightarrow \tan^2 \theta - 2 \tan \theta + 1 = 0$$

$$\Rightarrow (\tan \theta - 1)^2 = 0$$

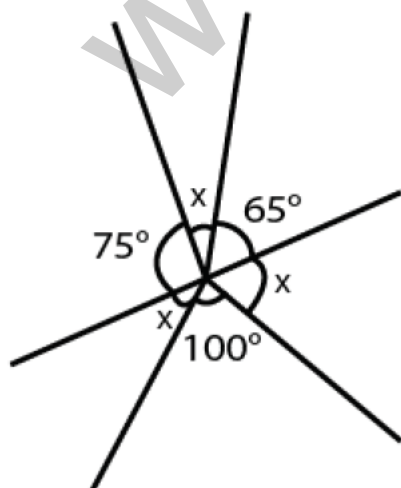
$$\Rightarrow \tan \theta = 1$$

$$\therefore \sec \theta = \sqrt{1 + \tan^2 \theta}$$

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

#### Question 5

The value of  $x$  in the following figure is



- A  $40^\circ$
- B  $70^\circ$
- C  $50^\circ$
- D  $60^\circ$

**Answer: A**

**Explanation:**

$$\text{Here, } x + 65^\circ + x + 100^\circ + x + 75^\circ = 360^\circ$$

$$\Rightarrow 3x + 240^\circ = 360^\circ$$

$$\Rightarrow x = \frac{120}{3} = 40^\circ$$

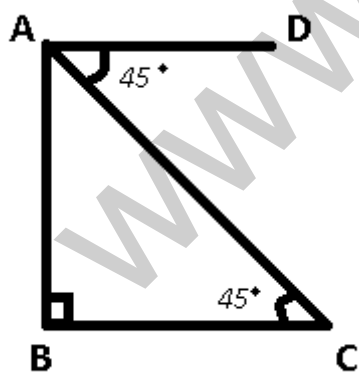
**Question 6**

The angle of depression of a point from the top of a 200 m high tower is  $45^\circ$ . The distance of the point from the tower is

- A  $\frac{200}{\sqrt{3}}$
- B  $200\text{m}$
- C  $200\sqrt{3}\text{m}$
- D None of these

**Answer: B**

**Explanation:**



$$AB = \text{tower} = 200 \text{ m}$$

$$\angle DAC = \angle ACB = 45$$

From  $\triangle ABC$

$$\Rightarrow \tan 45 = \frac{AB}{BC}$$

$$\Rightarrow 1 = \frac{200}{BC}$$

$$\Rightarrow BC = 200m$$

### Question 7

If  $\sin\theta + \cos\theta = \sqrt{2}\sin(90^\circ - \theta)$ , then  $\cot\theta$  is equal to

- A  $\sqrt{2} + 1$
- B  $\frac{1}{\sqrt{2}} + 2$
- C  $\sqrt{20} - 1$
- D None of these

**Answer: A**

### Explanation:

$$\text{Expression : } \sin\theta + \cos\theta = \sqrt{2}\sin(90^\circ - \theta)$$

$$\Rightarrow \sin\theta + \cos\theta = \sqrt{2}\cos\theta$$

$$\Rightarrow \sin\theta = \cos\theta(\sqrt{2} - 1)$$

$$\Rightarrow \frac{\cos\theta}{\sin\theta} = \frac{1}{\sqrt{2}-1}$$

$$\Rightarrow \cot\theta = \frac{1}{\sqrt{2}-1} \times \frac{\sqrt{2}+1}{\sqrt{2}+1}$$

$$\Rightarrow \cot\theta = \sqrt{2} + 1$$

### Question 8

If A and B are positive acute angles such that  $\sin(A - B) = 1/2$  and  $\cos(A + B) = 1/2$ , then A and B are given by

- A  $A = 45^\circ, B = 15^\circ$
- B  $A = 15^\circ, B = 45^\circ$
- C  $A = 30^\circ, B = 30^\circ$
- D None of these

**Answer: A**

### Explanation:

$$\sin(A - B) = \frac{1}{2} = \sin 30^\circ$$

$$\Rightarrow A - B = 30^\circ \text{ -----Eqn(1)}$$

$$\text{Again, } \cos(A + B) = \frac{1}{2} = \cos 60^\circ$$

$$\Rightarrow A + B = 60^\circ \text{ -----Eqn(2)}$$

Adding eqns (1) & (2)

$$2A = 90^\circ$$

$$\Rightarrow A = 45^\circ \text{ and } B = 15^\circ$$

### Question 9

If  $7\sin^2\theta + 3\cos^2\theta = 4$ , and  $\theta$  is a positive acute angle, then  $\tan\theta$  is equal to

A  $1/3$

B  $1/7$

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

D  $\sqrt{3}$

Answer: C

### Explanation:

$$\text{Expression : } 7\sin^2\theta + 3\cos^2\theta = 4$$

$$\Rightarrow 7(1 - \cos^2\theta) + 3\cos^2\theta = 4$$

$$\Rightarrow 7 - 4\cos^2\theta = 4$$

$$\Rightarrow \cos^2\theta = \frac{3}{4}$$

$$\Rightarrow \sec^2\theta = \frac{4}{3}$$

$$\therefore \tan\theta = \sqrt{\sec^2\theta - 1} = \sqrt{\frac{4}{3} - 1}$$

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

### Question 10

A wheel makes 360 revolutions in a minute. The number of radians through which it turns in one second is

A  $12\pi^c$

B  $11\pi^c$

C  $10\pi^c$

D  $8\pi$

Answer: A

### Explanation:

Number of revolutions made by wheel in 1 second =  $360/60 = 6$

Angle traced in one revolution =  $2\pi^c$

$$\Rightarrow \text{Angle traced in 6 revolutions} = 6 \times 2\pi = 12\pi^c$$

### Question 11

$\frac{\sec^2 \theta - \cot^2 (90^\circ - \theta)}{\operatorname{cosec}^2 67^\circ - \tan^2 23^\circ} + \sin^2 40^\circ + \sin^2 50^\circ$  is equal to

- A 0
- B 4
- C 2
- D 1

**Answer: C**

### Explanation:

$$\text{Expression: } \frac{\sec^2 \theta - \cot^2 (90^\circ - \theta)}{\operatorname{cosec}^2 67^\circ - \tan^2 23^\circ} + \sin^2 40^\circ + \sin^2 50^\circ$$

$$= \frac{\sec^2 \theta - \tan^2 \theta}{\operatorname{cosec}^2 67^\circ - \tan^2 (90^\circ - 67^\circ)} + \sin^2 40^\circ + \sin^2 (90^\circ - 40^\circ)$$

$$= \frac{1}{\operatorname{cosec}^2 67^\circ - \cot^2 67^\circ} + \sin^2 40^\circ + \cos^2 40^\circ$$

$$= 1 + 1 = 2$$

### Question 12

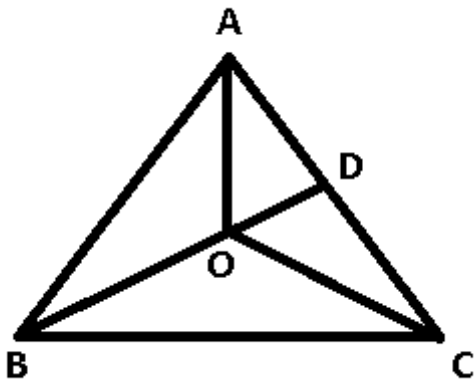
If P denotes the perimeter and S denotes the sum of the distances of a point within a triangle from its angular points, then

- A  $P < S$
- B  $P = S$
- C  $S < P$
- D Can't be determined

**Answer: C**

### Explanation:





BO is extended to D

In  $\triangle ABD$

$$AB + AD > BD$$

$$\Rightarrow AB + AD > OB + OD \text{ -----Eqn(1)}$$

In  $\triangle ODC$

$$OD + DC > OC \text{ -----Eqn(2)}$$

Adding eqn (1) & (2)

$$AB + AD + OD + DC > OB + OD + OC$$

$$\Rightarrow AB + AC > OB + OC \text{ -----Eqn(3)}$$

Similarly,

$$BC + BA > OA + OC \text{ -----Eqn(4)}$$

$$\text{and, } CA + CB > OA + OB \text{ -----Eqn(5)}$$

Adding eqns (3),(4) & (5), we get :

$$2 (AB + BC + CA) > 2 (OA + OB + OC)$$

$$\Rightarrow AB + BC + CA > OA + OB + OC$$

$$\therefore P > S$$

### Question 13

Two circles touch each other externally at a point P and a direct common tangent touches the circles at the points Q and R respectively. Then  $\angle QPR$  is

A  $45^\circ$

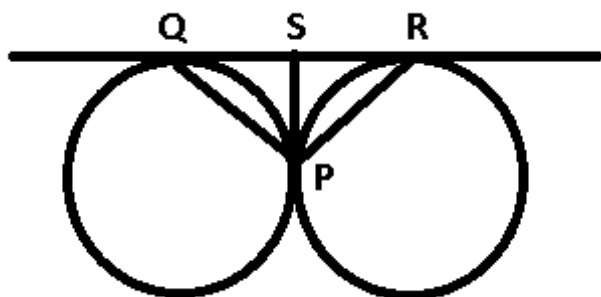
B  $180^\circ$

C  $90^\circ$

D  $60^\circ$

**Answer: C**

Explanation:



Since QS and SP are tangents from the same point S  $\Rightarrow$  QS = SP

$\Rightarrow$  In  $\triangle QSP$ ,  $\angle SQP = \angle QPS$

$\Rightarrow \angle SQP + \angle QPS + \angle PSQ = 180^\circ$

$\Rightarrow \angle QPS = 90/2 = 45^\circ$

Similarly,  $\angle SPR = 45^\circ$

Adding above two equations, we get :

$\Rightarrow \angle QPS + \angle SPR = 45^\circ + 45^\circ$

$\Rightarrow \angle QPR = 90^\circ$

#### Question 14

In triangle ABC, AB = 12 cm,  $\angle B = 60^\circ$ , the perpendicular from A to BC meets it at D. The bisector of  $\angle ABC$  meets AD at E. Then E divides AD in the ratio

A 3 : 1

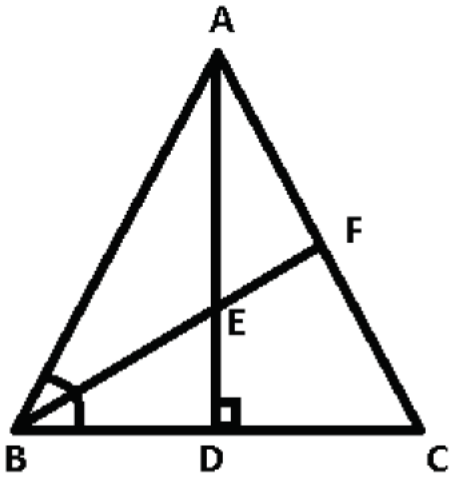
B 6 : 1

C 1 : 1

D 2 : 1

Answer: D

Explanation:



Given :  $\angle ABC = 60^\circ$ ,  $AB = 12$  cm

To find :  $AE : ED$

Solution : From  $\triangle ABD$

$$\Rightarrow \sin 60^\circ = \frac{AD}{AB}$$

$$\Rightarrow \frac{\sqrt{3}}{2} = \frac{AD}{12}$$

$$\Rightarrow AD = 6\sqrt{3} \text{ cm}$$

Again,

$$\Rightarrow \cos 60^\circ = \frac{BD}{AB}$$

$$\Rightarrow \frac{1}{2} = \frac{BD}{12}$$

$$\Rightarrow BD = 6 \text{ cm}$$

Also, BF is angle bisector of angle B  $\Rightarrow \angle EBD = 30^\circ$

From  $\triangle BDE$

$$\Rightarrow \tan 30^\circ = \frac{DE}{BD}$$

$$\Rightarrow \frac{1}{\sqrt{3}} = \frac{DE}{6}$$

$$\Rightarrow DE = 2\sqrt{3} \text{ cm}$$

$$\therefore \frac{AE}{ED} = \frac{AD - ED}{ED}$$

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

$$= \frac{4\sqrt{3}}{2\sqrt{3}} = \frac{2}{1}$$

$\Rightarrow$  Required ratio = 2 : 1

### Question 15

If  $a : b = 2 : 3$ ,  $b : c = 4 : 5$  and  $c : d = 6 : 7$ , then  $a : d =$

A 12 : 35

B 24 : 35

C 16 : 35

D 24 : 25

**Answer: C**

**Explanation:**

$$\frac{a}{b} = \frac{2}{3}$$

$$\frac{b}{c} = \frac{4}{5}$$

$$\frac{c}{d} = \frac{6}{7}$$

Multiplying all the equations, we get :

$$\Rightarrow \frac{a}{b} * \frac{b}{c} * \frac{c}{d} = \frac{2}{3} * \frac{4}{5} * \frac{6}{7}$$

$$\Rightarrow \frac{a}{d} = \frac{16}{35}$$

**Question 16**

The value of  $\sqrt{3\sqrt{0.000729}}$  is

A 0.03

B 0.09

C 0.9

D 0.52

**Answer: D**

**Explanation:**

we need to find value of  $\sqrt{3\sqrt{0.000729}}$

$$= \sqrt{3\sqrt{0.000729}} = \sqrt{3 \times 0.09}$$

$$= 0.3\sqrt{3}$$

$$= 0.519 \sim 0.52$$

**Question 17**

If the average of x and  $\frac{1}{x}$  be 1, then the value of  $x^{10} + \frac{1}{x^{10}}$  is

A -2



B 2

C 0

D 1

**Answer: B****Explanation:**

here it is given that

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

and it is possible only when  $x = 1$ 

$$\text{and hence we will put } x = 1 \text{ in } x^{10} + \frac{1}{x^{10}} = 1 + 1 = 2$$

**Question 18**

If the operation  $\Theta$  is defined for all real numbers  $a$  and  $b$  by the relation  $a\Theta b = a^2 \frac{b}{3}$  then  $2\Theta\{3\Theta(-1)\} = ?$

A 2

B 4

C -4

D -2

**Answer: C****Explanation:**

$$\text{It is given that } a\Theta b = a^2 \frac{b}{3}$$

Applying the same rule for  $2\Theta\{3\Theta(-1)\}$ 

$$= 2\Theta \frac{3^2 \times (-1)}{3}$$

$$= 2\Theta -3$$

$$= \frac{2^2 \times (-3)}{3} = -4$$

**Question 19**

O is the centre of a circle. AB is a chord of the circle but not its diameter. OC is perpendicular to AB. If OC = CB and radius of the circle be 7 cm, then the length of AB is

A  $7\sqrt{2}$  cm

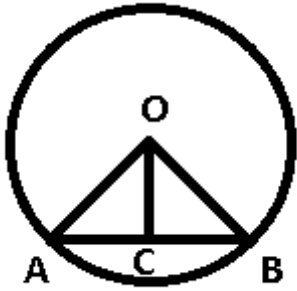
B 14 cm

C 7 cm

D  $\frac{7}{\sqrt{2}}$  cm

Answer: A

Explanation:



Since, OC is perpendicular to AB

Also, OC = BC

=> In  $\triangle OBC$

$$\Rightarrow OB^2 = OC^2 + BC^2$$

$$\Rightarrow 7^2 = 2BC^2$$

$$\Rightarrow BC = \frac{7}{\sqrt{2}}$$

$$\therefore AB = 2 * AC = 2 * \frac{7}{\sqrt{2}}$$

$$= 7\sqrt{2} \text{ cm}$$

Question 20

In  $\triangle ABC$ , D, E, F are midpoints of AB, BC, CA respectively and  $\angle B = 90^\circ$ , AB = 6 cm, BC = 8 cm. Then area of A DEF (in sq. cm) is

A 24

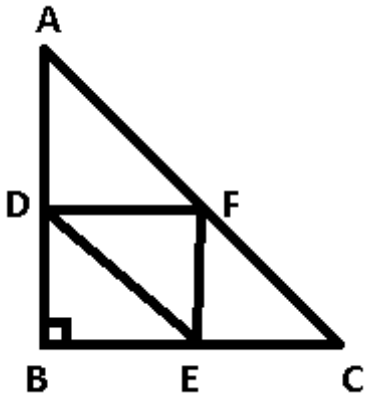
B 28

C 6

D 12

Answer: C

Explanation:



Given :  $AB = 6$  cm and  $BC = 8$  cm

To find : area of  $\triangle DEF$

Solution : Since D, E and F are mid points of AB, BC and AC

$$\Rightarrow \text{area of } \triangle DEF = \frac{1}{4} \triangle ABC$$

$$= \frac{1}{4} * \frac{1}{2} * 8 * 6 = 6 \text{ sq. cm}$$

#### Question 21

If in a triangle ABC, the angles at B and C are 1.5 and 2.5 times of the angle at A respectively, then angle at B is

- A  $36^\circ$
- B  $54^\circ$
- C  $48^\circ$
- D  $72^\circ$

Answer: B

#### Explanation:

Let  $\angle A = 2x$

$$\Rightarrow \angle B = 1.5 * 2x = 3x$$

$$\Rightarrow \angle C = 2.5 * 2x = 5x$$

Now, in  $\triangle ABC$

$$\Rightarrow \angle A + \angle B + \angle C = 180^\circ$$

$$\Rightarrow 2x + 3x + 5x = 180^\circ$$

$$\Rightarrow x = 18^\circ$$

$$\therefore \angle B = 3 * 18 = 54^\circ$$

#### Question 22

In xyplane, a straight line L 1 bisects the 1st quadrant and another straight line L 2 trisects the 2nd quadrant being closer to the axis of y. The acute angle between L 1 and L 2 is

- A  $60^\circ$
- B  $120^\circ$
- C  $90^\circ$
- D  $75^\circ$

**Answer:** D

**Explanation:**

The line  $L_1$  bisects the 1st quadrant

$\Rightarrow$  Angle between y-axis and  $L_1 = 45^\circ$

Also,  $L_2$  trisects the 2nd quadrant

$\Rightarrow$  Angle between y-axis and  $L_2 = 30^\circ$

$\therefore$  Acute angle between  $L_1$  and  $L_2 = 45^\circ + 30^\circ = 75^\circ$

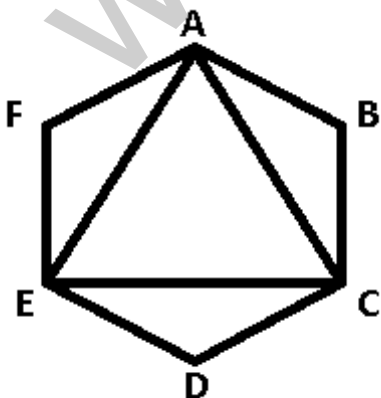
**Question 23**

If ABCDEF is a regular hexagon, then  $\triangle ACE$  is

- A a rightangled triangle
- B an obtuseangled triangle
- C an isosceles triangle
- D an equilateral triangle

**Answer:** D

**Explanation:**



Sum of all angles of the hexagon =  $(n - 2) * 180^\circ$



$$= (6-2) \times 180^\circ = 720^\circ$$

$$\Rightarrow \text{Each interior angle} = \frac{720^\circ}{6} = 120^\circ$$

Since,  $AB = BC$

$$\Rightarrow \angle BAC = \angle ACB = 30^\circ$$

$$\Rightarrow \angle ACE = \angle CEA = \angle EAC = 60^\circ$$

$$\Rightarrow AC = CE = EA$$

$\Rightarrow \triangle ACE$  is an equilateral triangle.

#### Question 24

$ABCD$  is a cyclic quadrilateral whose vertices are equidistant from the point  $O$  (centre of the circle). If  $\angle COD = 120^\circ$  and  $\angle BAC = 30^\circ$ , then the measure of  $\angle BCD$  is

A  $180^\circ$

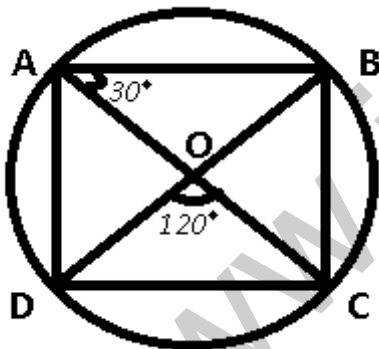
B  $150^\circ$

C  $60^\circ$

D  $90^\circ$

Answer: D

Explanation:



Given :  $OA = OB = OC = OD$

To find :  $\angle BCD = ?$

Solution :  $\angle COD + \angle BOC = 180^\circ$  [Linear Pair]

$$\Rightarrow \angle BOC = 180^\circ - 120^\circ = 60^\circ$$

Also,  $\angle OBC = \angle OCB$  [ $\because OB = OC$ ]

In  $\triangle BOC$

$$\Rightarrow \angle BOC + \angle OCB + \angle OBC = 180^\circ$$

$$\Rightarrow \angle OCB = \frac{120^\circ}{2} = 60^\circ \text{ -----Eqn(1)}$$

Also,  $\angle OAB = \angle OCD$  [Alternate interior angles]

$$\Rightarrow \angle OCD = 30^\circ \text{ -----Eqn(2)}$$

Adding eqn (1) & (2), we get :

$$\Rightarrow \angle OCB + \angle OCD = 60^\circ + 30^\circ$$

$$\Rightarrow \angle BCD = 90^\circ$$

### Question 25

P owns  $\frac{2}{3}$  shares of a company and the rest of the shares is equally divided among Q and R. If the profit on each share increases from 5% to 7%, P earns an extra 800 rupees. The investment of R on the shares is

- A Rs. 20,000
- B Rs. 15,000
- C Rs. 10,000
- D Rs. 40,000

**Answer: C**

### Explanation:

Let total shares of the company be  $6x$

$$\Rightarrow P = \frac{2}{3} * 6x = \text{Rs. } 4x$$

$$\Rightarrow Q = \text{Rs. } x \text{ and } R = \text{Rs. } x$$

$$\therefore 4x \times 2\% = 800$$

$$\Rightarrow 4x \times \frac{2}{100} = 800$$

$$\Rightarrow x = 10,000$$

$$\therefore \text{R's investment} = x = \text{Rs. } 10,000$$

### Question 26

A sum of money lent at compound interest for 2 years at 20% per annum would fetch Rs. 482 more, if the interest was payable half yearly than if it was payable annually. The sum is

- A Rs. 30,000
- B Rs. 40,000
- C Rs. 10,000
- D Rs. 20,000

**Answer: D**

**Explanation:**

case 1 : When amount is lent annually

$$\begin{aligned} \Rightarrow C.I. &= P\left[\left(1 + \frac{R}{100}\right)^T - 1\right] \\ &= P\left[1 + \frac{20}{100}\right]^2 - 1 \\ &= P\left(\frac{36}{25} - 1\right) \\ &= \frac{11}{25}P \text{ -----Eqn(1)} \end{aligned}$$

case 2 : When amount is lent half yearly

$$\begin{aligned} \Rightarrow C.I. &= P\left[\left(1 + \frac{10}{100}\right)^4 - 1\right] \\ &= P\left[\left(\frac{11}{10}\right)^4 - 1\right] \\ &= \frac{4641}{10000}P \text{ -----Eqn(2)} \end{aligned}$$

Subtracting eqn (1) from (2), we get :

$$\begin{aligned} \Rightarrow \frac{4641}{10000}P - \frac{11}{25}P &= 482 \\ \Rightarrow 241P &= 4820000 \\ \Rightarrow P &= Rs.20,000 \end{aligned}$$

**Question 27**

A man travels  $\frac{2}{15}$  of the total journey by rail,  $\frac{9}{20}$ , by car and the remaining 10 km on foot. His total journey in km is

- A 36
- B 40
- C 30
- D 24

**Answer: D**

**Explanation:**

Let his total journey be  $60x$  km

$$\text{Distance travelled by rail} = \frac{2}{15} * 60x = 8x$$

$$\text{Distance travelled by car} = \frac{9}{20} * 60x = 27x$$

$$\text{Remaining distance} = 60x - 8x - 27x = 25x$$

Acc to ques :

$$\Rightarrow 25x = 10$$

$$\Rightarrow x = \frac{2}{5}$$

$$\Rightarrow \text{Total journey} = \frac{2}{5} * 60 = 24 \text{ km}$$

### Question 28

A merchant bought 140 cupboards at an auction. He sold 80 of them at a profit of Rs. 4,000 and the rest at a loss of Rs. 1,200. On the whole, he gained 10%. Then the cost of each cupboard is

- A Rs. 210
- B Rs. 190
- C Rs. 200
- D Rs. 180

**Answer: C**

### Explanation:

Let the cost price of each cupboard be Rs  $x$

$$\text{Total cost price} = 140x$$

$$\text{Selling price of first 80 cupboards} = 80x + 4,000$$

$$\text{Selling price of the rest 60 cupboards} = 60x - 1,200$$

$$\Rightarrow \text{Total selling price of the cupboards} = 140x + 2,800$$

$$\text{Also, he overall gained 10\%,} \Rightarrow \text{Selling price} = 140x + \frac{10}{100} * 140x = 154x$$

$$\Rightarrow 154x = 140x + 2800$$

$$\Rightarrow x = \frac{2800}{14} = 200$$

Thus, cost of each cupboard = Rs 200

### Question 29

If  $3x^2 - 4x - 3 = 0$ , then the value of  $x - 1/x$  is

- A 3
- B 4
- C 3/4
- D 4/3

**Answer: D**

### Explanation:

$$\text{Expression : } 3x^2 - 4x - 3 = 0$$



$$\Rightarrow 3x^2 - 3 = 4x$$

On dividing by  $3x$  on both sides, we get :

$$\Rightarrow x - \frac{1}{x} = \frac{4}{3}$$

### Question 30

**a : b for the greatest possible value of  $5 - (3a - b)^2$  is**

A 3 : 5

B 1 : 5

C 1 : 3

D 3 : 1

**Answer: C**

### Explanation:

The value of the expression  $5 - (3a - b)^2$  will be maximum if

$$3a - b = 0$$

$$\Rightarrow 3a = b$$

$$\Rightarrow \frac{a}{b} = \frac{1}{3}$$

$\therefore$  Required ratio = 1 : 3

### Question 31

**If  $a + b + c = 6$ ,  $a^2 + b^2 + c^2 = 14$ , find the value of  $bc + ca + ab$ .**

A 22

B 25

C 20

D 11

**Answer: D**

### Explanation:

It is given that :  $a + b + c = 6$  and  $a^2 + b^2 + c^2 = 14$

$$\text{Also, } (a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$$

$$\Rightarrow 6^2 = 14 + 2(ab + bc + ca)$$

$$\Rightarrow ab + bc + ca = \frac{22}{2} = 11$$

**Question 32**

Find the value of the expression  $x^5 - 12x^4 + 12x^3 - 12x^2 + 12x - 1$  when  $x = 11$ .

- A 12
- B 0
- C 10
- D 11

**Answer: C**

**Explanation:**

Expression :  $x^5 - 12x^4 + 12x^3 - 12x^2 + 12x - 1$

$$= x^5 + (-11x^4 - x^4) + (11x^3 + x^3) + (-11x^2 - x^2) + (11x + x) - 1$$

$$= (x^5 - 11x^4) + (11x^3 - x^4) + (x^3 - 11x^2) + (11x - x^2) + (x - 1)$$

$$= x^4(x - 11) + x^3(11 - x) + x^2(x - 11) + x(11 - x) + (x - 1)$$

Putting  $x = 11$

$$= 11 - 1 = 10$$

**Question 33**

If  $x + \frac{1}{x} = 2$ , find the value of  $(x^2 + \frac{1}{x^2})(x^3 + \frac{1}{x^3})$

- A 8
- B 2
- C 6
- D 4

**Answer: D**

**Explanation:**

Expression :  $x + \frac{1}{x} = 2$

Squaring both sides, we get :

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

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

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

Now, cubing the given expression, we get :

$$\Rightarrow \left(x + \frac{1}{x}\right)^3 = 2^3$$

$$\Rightarrow x^3 + \frac{1}{x^3} + 3 \cdot x \cdot \frac{1}{x} \cdot \left(x + \frac{1}{x}\right) = 8$$

$$\Rightarrow x^3 + \frac{1}{x^3} + 3 * 2 = 8$$

$$\Rightarrow x^3 + \frac{1}{x^3} = 2$$

$$\text{To find : } \left(x^2 + \frac{1}{x^2}\right)\left(x^3 + \frac{1}{x^3}\right)$$

$$= 2 * 2 = 4$$

#### Question 34

If  $x = \frac{3\sqrt{m+1}+3\sqrt{m-1}}{3\sqrt{m+1}-3\sqrt{m-1}}$ , then the value of  $x^3 - 3mx^3 + 3x - m$  is

A 0

B  $m - 1/m$

C  $m + 1/m$

D 1

Answer: A

#### Question 35

A can finish a work in 24 days, B in 9 days and C in 12 days. B and C start the work but they are forced to leave after 3 days. The remaining work was done by A in

A 10 days

B  $10 \frac{1}{2}$  days

C 5 days

D 6 days

Answer: A

#### Explanation:

Let the total work be 72 units

$$\text{Rate at which A finishes the work alone} = \frac{72}{24} = 3 \text{ units/day}$$

$$\text{Rate at which B finishes the work alone} = \frac{72}{9} = 8 \text{ units/day}$$

$$\text{Rate at which C finishes the work alone} = \frac{72}{12} = 6 \text{ units/day}$$

Now, B & C work together for 3 days =  $(8 + 6) * 3 = 42$  units

Work left =  $72 - 42 = 30$  units

Remaining work is done by A in =  $\frac{30}{3} = 10$  days

### Question 36

When 7 is subtracted from thrice a number, the result is 14. What is the number ?

A 8

B 9

C 6

D 7

Answer: D

### Explanation:

Let the number be  $x$

Acc to ques :

$$\Rightarrow 3x - 7 = 14$$

$$\Rightarrow x = \frac{21}{3} = 7$$

### Question 37

The least number which should be multiplied to 243 to get a perfect cube is

A 6

B 9

C 2

D 3

Answer: D

### Explanation:

$$243 = 3 * 3 * 3 * 3 * 3$$

$$= 3^3 * 3^2$$

Thus, required number to be multiplied = 3



**Question 38**

In a basket, there are 125 flowers. A man goes to worship and offers as many flowers at each temple as there are temples in the city. Thus he needs 5 baskets of flowers. Find the number of temples in the city.

- A 25
- B 24
- C 27
- D 26

**Answer:** A

**Explanation:**

Let the number of temples in the city be  $x$

Also, he offers  $x$  flowers in each temple

Total number of flowers he offered =  $x^2 = 5 \times 125$

$$\Rightarrow x = \sqrt{625} = 25$$

**Question 39**

Product of the three consecutive numbers whose sum is 15,

- A 120
- B 150
- C 126
- D 105

**Answer:** A

**Explanation:**

Let the three consecutive numbers be  $(x - 1), (x), (x + 1)$

Sum of these numbers =  $x - 1 + x + x + 1 = 15$

$$\Rightarrow x = 5$$

Numbers are = 4, 5 & 6

Product of these numbers =  $4 \times 5 \times 6 = 120$

**Question 40**

The simplified value of  $999\frac{1}{7} + 999\frac{2}{7} + 999\frac{3}{7} + 999\frac{4}{7} + 999\frac{5}{7} + 999\frac{6}{7}$  is

- A  $10009\frac{2}{7}$

B  $5994\frac{6}{7}$

C  $9999\frac{2}{7}$

D 5997

**Answer: D****Explanation:**

we need to find value of  $999\frac{1}{7} + 999\frac{2}{7} + 999\frac{3}{7} + 999\frac{4}{7} + 999\frac{5}{7} + 999\frac{6}{7}$

$$6000 - \frac{1+2+3+4+5+6}{7}$$

$$= 6000 - \frac{21}{7}$$

$$= 6000 - 3 = 5997$$

**Question 41**

50 boxes with equal weights were loaded in a ship. 5 more boxes each weighing 105 kg were later added, making the average weight of all the 55 boxes as 95 kg. The weight of each of the 50 boxes first loaded is

A 98 kg

B 94 kg

C 95 kg

D 92 kg

**Answer: B****Explanation:**

Let weight of each box be  $x$  kg

$$\Rightarrow \text{Total weight of 50 boxes} = 50x \text{ kg}$$

$$\text{Total weight of 5 additional boxes} = 105 \times 5 = 525 \text{ kg}$$

Acc to ques :

$$\Rightarrow \frac{50x + 525}{55} = 95$$

$$\Rightarrow 50x + 525 = 5225$$

$$\Rightarrow x = \frac{4700}{50}$$

$$\Rightarrow x = 94 \text{ kg}$$

**Question 42**

In a club, the average age of the members is 30 years, the average age of the male members is 34 years and that of the female members is 26 years. The percentage of the male members is

- A 50%
- B 60%
- C 30%
- D 40%

**Answer: A**

**Explanation:**

Let male members be  $x$  and female members be  $y$

$$\Rightarrow \text{Total members in the club} = (x + y)$$

$$\text{Now, total age of male members} = 34x$$

$$\text{Total age of female members} = 26y$$

$$\text{Also, total age of all the members} = 30(x + y)$$

Acc to ques :

$$\Rightarrow 34x + 26y = 30x + 30y$$

$$\Rightarrow 4x = 4y$$

$$\Rightarrow x = y$$

$$\text{Now, \% of male members} = \frac{x}{x+y} * 100$$

$$= \frac{x}{2x} * 100 = 50\%$$

**Question 43**

In 60 litres beverage, the ratio of syrup and water is 3 : 7. If the ratio of the syrup and water is to be made 2 : 5, then the amount of water to be further added is

- A 5 litres
- B 2.5 litres
- C 2 litres
- D 3 litres

**Answer: D**

**Explanation:**

The ratio of syrup and water is 3 : 7 in 60 litres beverage.

$$\Rightarrow \text{Quantity of syrup} = \frac{3}{10} * 60 = 18 \text{ litres}$$

$$\text{and quantity of water} = \frac{7}{10} * 60 = 42 \text{ litres}$$

Let the amount of water to be added is  $x$  litre

$$\text{Now, } \frac{18}{42+x} = \frac{2}{5}$$

$$\Rightarrow 84 + 2x = 90$$

$$\Rightarrow x = 6/2 = 3 \text{ litres}$$

#### Question 44

If a trader sold an article at Rs.3,060 after allowing 15% and 10% successive discounts on marked price, then the marked price is

- A Rs. 5,000
- B Rs. 6,000
- C Rs. 3,000
- D Rs. 4,000

**Answer: D**

#### Explanation:

Let marked price =  $100x$

After allowing discount of 15%, price =  $100x - \frac{15}{100} * 100x = 85x$

After further allowing discount of 10%, price =  $85x - \frac{10}{100} * 85x = 76.5x$

Now, selling price =  $76.5x = 3060$

$$\Rightarrow x = \frac{3060}{76.5} = 40$$

$\therefore$  Marked Price =  $100 * 40 = \text{Rs } 4,000$

#### Question 45

The area of a trapezium is 105 sq. m and, the lengths of its parallel sides are 9m and 12m respectively. Then the height of the trapezium is

- A 15 m
- B 12 m
- C 5 m
- D 10 m

**Answer: D**

#### Explanation:

Area of trapezium =  $\frac{1}{2} * (\text{sum of parallel sides}) * (\text{height})$

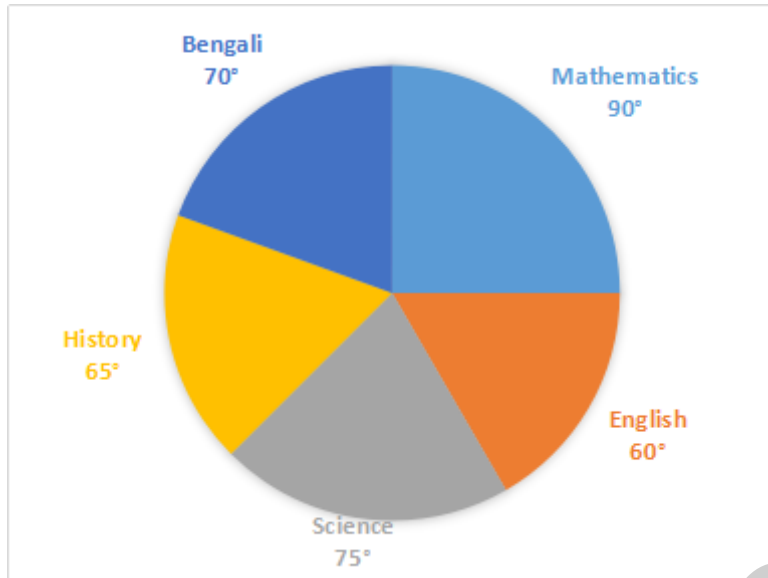
$$\Rightarrow \frac{1}{2} * (9 + 12) * h = 105$$

$$\Rightarrow h = \frac{105 * 2}{21}$$

$$\Rightarrow h = 10m$$

### Instructions

The following pie chart shows the marks obtained by a student in an examination, who scored 720 marks in all. Study the diagram and answer the questions given below.



### Question 46

The marks scored in Science are

- A 200
- B 300
- C 75
- D 150

Answer: D

### Explanation:

the marks scored in science =  $\frac{75}{360} \times 720 = 150$

so the answer is option D.

### Question 47

The subject in which the student scored  $16 \frac{2}{3}$  % of his total score is

- A Bengali

- B History
- C English
- D Mathematics

**Answer: C**

**Explanation:**

$$16 \frac{2}{3} \% = \frac{50}{3} \% = 16.66\%$$

$$\text{percentage in maths} = \frac{90}{360} \times 100 = 25\%$$

$$\text{percentage in english} = \frac{60}{360} \times 100 = 16.66\%$$

$$\text{percentage in bengali} = \frac{70}{360} \times 100 = 19.44\%$$

$$\text{percentage in history} = \frac{65}{360} \times 100 = 18.05\%$$

$$\text{percentage in science} = \frac{75}{360} \times 100 = 20.83\%$$

so the answer is option C.

**Question 48**

**The subject in which the student scored 180 marks is**

- A Mathematics
- B Bengali
- C English
- D Science

**Answer: A**

**Explanation:**

**method 1:**

$$\text{total marks} = 720$$

$$720 \text{ marks} = 360 \text{ degrees}$$

$$1 \text{ mark} = \frac{1}{2} \text{ degrees}$$

$$180 \text{ marks} = 90 \text{ degrees}$$

so the answer is option A.

**method 2:**

$$\text{The marks scored in Mathematics} = \frac{90}{360} \times 720 = 180$$

$$\text{The marks scored in English} = \frac{60}{360} \times 720 = 120$$

$$\text{The marks scored in Bengali} = \frac{70}{360} \times 720 = 140$$

$$\text{The marks scored in History} = \frac{65}{360} \times 720 = 130$$



The marks scored in Science =  $\frac{75}{360} \times 720 = 150$

so the answer is option A.

#### Question 49

The marks scored in Mathematics and English together differ from the total marks scored in Bengali, History and Science by

A 85

B 61

C 120

D 72

Answer: C

#### Explanation:

The marks scored in Mathematics =  $\frac{90}{360} \times 720 = 180$

The marks scored in English =  $\frac{60}{360} \times 720 = 120$

The marks scored in Bengali =  $\frac{70}{360} \times 720 = 140$

The marks scored in History =  $\frac{65}{360} \times 720 = 130$

The marks scored in Science =  $\frac{75}{360} \times 720 = 150$

The marks scored in Mathematics and English together =  $180+120 = 300$

The marks scored in Bengali, History and Science together =  $140+130+150 = 420$

difference =  $420 - 300 = 120$

so the answer is option C.

#### Question 50

The marks scored in English, differ from the marks scored in Science by

A 75

B 15

C 30

D 60

Answer: C

#### Explanation:

The marks scored in English =  $\frac{60}{360} \times 720 = 120$

The marks scored in Science =  $\frac{75}{360} \times 720 = 150$

difference =  $150 - 120 = 30$

so the answer is option C.

## English

### Instructions

In the following questions, some parts of the sentences have errors and some have none. Find out which part of a sentence has an error. The number of that part is the answer. If a sentence is free from error, your answer is (d) i.e. No error.

### Question 51

I could (a)/ hardly believe (b)/ what he said. (c)/ No error (d)

- A I could
- B hardly believe
- C what he said.
- D No Error

Answer: D

### Question 52

The Government wanted to play the role (a)/ of a felicitator only and was (b)/ keen on optimal development. (c)/ No error (d)

- A The Government wanted to play the role
- B of a felicitator only and was
- C keen on optimal development.
- D No Error

Answer: B

### Question 53

Admittance for (a)/ the inaugural ceremony was (b)/ only by special tickets. (c)/ No error (d)

- A Admittance for
- B the inaugural ceremony was
- C only by special tickets.
- D No Error

**Answer: A**

#### Question 54

**Pulses when well cooked (a)/ are not only appetizing (b)/ as well as nutritious. (c)/ No error (d)**

- A Pulses when well cooked
- B are not only appetizing
- C as well as nutritious.
- D No Error

**Answer: C**

#### Question 55

**Martin Luther king was one of the leaders (a)/ who (b)/ has follow(ed Mahatma Gandhi.(c)/ No error (d)**

- A Martin Luther king was one of the leaders
- B who
- C has followed Mahatma Gandhi.
- D No Error

**Answer: C**

#### Instructions

In the following questions, sentences are given with blanks to be filled in with an appropriate word(s). Four alternatives are suggested for each question. Choose the correct alternative out of the four as your answer.

#### Question 56

**In certain traditions, the husband is \_\_\_\_\_ as the breadwinner and the wife is expected to play a \_\_\_\_\_ role.**

- A counted; unequal
- B treated; unique
- C perceived; subordinate
- D believed; subservient

**Answer: C**

#### Question 57

The two parties have to..... each other's sensibilities and..... towards a win win merger.

- A seek; move
- B develop; look
- C respect; work
- D accept; develop

**Answer: C**

#### Question 58

I .....that my pocket picked.

- A realized; had been
- B had realized; was
- C realized; is
- D had realized; has been

**Answer: A**

#### Question 59

Joseph .....from his job because he was..... for promotion.

- A left; declined ,
- B gave up; refused
- C left; asked

D resigned; sidelined

**Answer: D**

### Question 60

Only .....people are .....after death.

A virtual; known

B virtuous; remembered

C brave; forgotten

D vicious; admired

**Answer: B**

### Instructions

In the following questions, out of the four alternatives, choose the one which best expresses the meaning of the given word as your answer.

### Question 61

Fallacy

A smart move

B unfounded fear

C famous invention

D mistaken belief

**Answer: D**

### Question 62

Diligent

A conceited

B great

C hard working

D proud

**Answer: C**

**Question 63**

**Garrulous**

- A grumpy
- B important
- C friendly
- D talkative

**Answer: D**

**Question 64**

**Zenith**

- A hope
- B ideal
- C pinnacle
- D reality

**Answer: C**

**Question 65**

**Proximity**

- A nearness
- B affinity
- C prospect
- D rapport

**Answer: A**

**Instructions**

In the following questions, choose the word opposite in meaning to the given word as your answer.



**Question 66****Gregarious**

- A delight
- B unsociable
- C social
- D stern

**Answer: B**

**Question 67****Taciturn**

- A talkative
- B yielding
- C tactful
- D foolish

**Answer: A**

**Question 68****Archaic**

- A updated
- B antediluvian
- C modern
- D obsolete

**Answer: C**

**Question 69****Inadvertent**

- A advertise

- B pretend
- C indifferent
- D deliberate

**Answer: D**

### Question 70

#### Verbose

- A bogus
- B brief
- C written
- D rubbish

**Answer: B**

#### Instructions

In the following questions, four alternatives are given for the idiom/phrase printed in bold. Choose the alternative which best expresses the meaning of the idiom/phrase as your answer.

### Question 71

**In spite of his recent financial troubles, Ashok has not learnt to cut his coat according to his cloth.**

- A overcome his problems
- B wear modest clothes
- C improve his tailoring abilities
- D live within his income

**Answer: D**

### Question 72

**She keeps blowing hot and cold and therefore, nobody can befriend her for long.**

- A being friendly at one moment and unfriendly the next
- B trying to cool the situation down and then raking it up again

- C being unfriendly and critical
- D being good and bad alternately

**Answer: A**

### Question 73

**The secretary had the information at her fingertips.**

- A on her typewriter
- B readily available
- C in the compact disc
- D not accessible

**Answer: B**

### Question 74

**To take the bull by the horns**

- A to check rumours from spreading
- B to inflict a crushing defeat upon the enemy
- C to face danger
- D to restrain anger

**Answer: C**

### Question 75

**Consoling her daughter, the mother said that there was no use crying over spilled milk.**

- A to slip and spill milk
- B complaining about an event that cannot be changed
- C worrying about the milk that was spilled
- D to cry having a glass of milk

**Answer: B**

**Instructions**

In the following questions, a part of the sentence is printed in bold. Below are given alternatives to the bold part at (a), (b) and (c) which may improve the sentence. Choose the correct alternative. In case no improvement is needed, your answer is (d).

**Question 76**

**It rained bitterly throughout the day, spoiling all our plans to go out.**

- A strongly
- B fiercely
- C intermittently
- D No improvement

**Answer: C**

**Question 77**

**Hardly had he finished the novel, than the principal called him.**

- A then the principal called him
- B and the principal called him
- C when the principal called him
- D No improvement

**Answer: C**

**Question 78**

**It is rumoured that the road will be closed tomorrow.**

- A has been told
- B has been announced
- C has been talked
- D No improvement

**Answer: B**

**Question 79**

You should meet the concerned programme coordinators for registration.

- A programme coordinators
- B programme coordinators concerned
- C respected programme coordinators
- D No improvement

**Answer: B**

**Question 80**

The patient was writhing in depression on the bed.

- A pain
- B sorrow
- C happiness
- D No improvement

**Answer: A**

**Instructions**

In the following questions, out of the four alternatives, choose the one which can be substituted for the given words/sentence.

**Question 81**

The book won the prestigious award after the death of its author.

- A inordinately
- B successively
- C vicariously
- D posthumously

**Answer: D**

**Question 82**

Spending too much time thinking about and admiring one's own appearance or abilities

- A Narcissism
- B Nepotism
- C Aphorism
- D Euphemism

**Answer: A**

**Question 83**

Socioeconomic order that existed in medieval Europe

- A Socialism
- B Feudalism
- C Communism
- D Democracy

**Answer: B**

**Question 84**

Scholarly and learned

- A Wise
- B Vivacious
- C Stoic
- D Erudite

**Answer: D**

**Question 85**

A system of government in which the laws of the State are believed to be the laws of God.



- A Theocracy
- B Democracy
- C Secularism
- D Socialism

**Answer: A**

### Instructions

In the following questions, there are four different words out of which one is misspelt. Find the misspelt word as your answer.

### Question 86

- A tern toreal
- B pharmacy
- C rapture
- D remainder

**Answer: A**

### Question 87

- A cartilage
- B marriage
- C privilage
- D carriage

**Answer: C**

### Explanation:

The correct spelling of 'privilage' us 'privilege'. Therefore, option C is the right answer.

### Question 88

- A autocracy
- B hypocrisy

- C democracy
- D idiosyncrasy

**Answer: D**

**Question 89**

- A laboratory
- B dispensary
- C foundry
- D observatory

**Answer: B**

**Question 90**

- A gauge
- B gauze
- C gaudy
- D guarantee

**Answer: D**

**Instructions**

In the following questions, you have a brief passage with 5 questions following it. Read the passage carefully and choose the best answer to each question out of the four alternatives.

Modernity snobbery, though not exclusive to our age, has come to assume an unprecedented importance. The reasons for this are simple and of a strictly economic character. Thanks to modern machinery, production is outrunning consumption. Organized waste among consumers is the first condition of our industrial prosperity. The sooner a consumer throws away the object he has bought and buys another, the better for the producer. At the same time the producer must do his bit by producing nothing but the most perishable articles.

**Question 91**

**The expression 'production is outrunning consumption' means**

- A production is falling short of consumption

- B consumption is much more than production
- C production is in excess of consumption
- D production and consumption are running close to each other

**Answer: C**

#### Question 92

**The best definition of the term 'Modernity snobbery' is**

- A paying too much attention to use things of the latest design
- B giving undue attention to social position
- C better status for those who are uptodate
- D those who are modern get more respect in the society

**Answer: A**

#### Question 93

**According to the author, 'modern machinery' is giving rise to**

- A more waste
- B industrial prosperity
- C more markets
- D variety to the consumers

**Answer: B**

#### Question 94

**The production of more dispensable articles is necessary because it will**

- A satisfy the immediate needs of the customers
- B compel the customers to go in for new articles
- C attract more customers
- D keep the factories working

**Answer: D**

### Question 95

**For industrial prosperity, 'modernity snobbery' is important because it induces people to**

- A buy only the most expensive articles to maintain social position
- B help in the production of duplicate articles
- C buy articles which are perishable
- D discard old things for new ones

**Answer: D**

### Instructions

In the following questions, you have a brief passage with 5 questions following it. Read the passage carefully and choose the best answer to each question out of the four alternatives.

Reality television is a genre of television programming which, it is claimed, presents unscripted dramatic or humorous situations, documents, actual events, and features ordinary people rather than professional actors. Although the genre has existed in some form or another since the early years of television, the current explosion of popularity dates from around 2000. Part of reality television's appeal is due to its ability to place ordinary people in extraordinary situations. Reality television also has the potential to turn its participants into national celebrities, in talent and performance programmes such as Pop Idol, though frequently 'Survivor' and 'Big Brother' participants also reach some degree of celebrity. Some commentators have said that the name "reality television" is an inaccurate description for several styles of programmes included in the genre. In competition based programmes such as 'Survivor' and other special living environment shows like 'The Real World', the producers design the format of the show and control the day to day activities and the environment, creating a completely fabricated world in which the competition is worked out. Producers specifically select the participants, and use carefully designed scenarios, challenges, events, and settings to encourage particular behaviour and conflicts.

### Question 96

**The participants in the Reality Shows are**

- A comedians
- B national celebrities
- C professional actors
- D ordinary people

**Answer: D**

**Question 97**

The format of competition based programmes is decided by the

- A writer of the script
- B professional actors
- C producer
- D participants

**Answer: C**

**Question 98**

In the first sentence, the writer says, 'it is claimed' because

- A some people insist on the statement
- B he wants to distance himself from the statement
- C he agrees with the statement
- D everyone agrees with the statement

**Answer: B**

**Question 99**

**Reality television**

- A has only been popular since 2000
- B has been popular approximately since 2000
- C has been popular since the start of television
- D has been popular since well before 2000

**Answer: B**

**Question 100**

**Reality TV appeals to some because it**

- A shows average people in exceptional circumstances

- B can turn ordinary people into celebrities
- C shows eligible males dating women
- D uses exotic locations

**Answer: A**

## Reasoning

### Instructions

In the following questions, select the related letters/word/number from the given alternatives.

### Question 101

**Length : Metre :: Power : ?**

- A Calories
- B Degree
- C Watt
- D Kilogram

**Answer: C**

### Explanation:

The SI unit of length is metre, similarly unit of Power is Watt.

=> Ans - (C)

### Question 102

**Square : Cube :: Circle : ?**

- A Ellipse
- B Parabola
- C Cone
- D Sphere

**Answer: D**

**Explanation:**

The 3 dimensional representation of a square is cube, similarly 3-D image of circle is sphere.

=> Ans - (D)

**Question 103**

**Paper : Tree :: Glass: ?**

A Window

B Sand

C Stone

D Mirror

**Answer: B**

**Explanation:**

Paper is made from trees, similarly glass is made up of liquid sand.

=> Ans - (B)

**Question 104**

**ACFJ : ZXUQ :: EGIN : ?**

A VUSQ

B VRPM

C UTRP

D VTRM

**Answer: D**

**Explanation:**

Expression = ACFJ : ZXUQ :: EGIN : ?

Each letter is coded as its reverse alphabet according to the English alphabetical order.

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

Similarly, EGIN : **VTRM**

=> Ans - (D)



**Question 105**

ACEG : DFHJ :: QSUW : ?

- A TVXZ  
 B TQST  
 C MNPR  
 D EGIJ

**Answer: A****Explanation:**

Expression = ACEG : DFHJ :: QSUW : ?

The pattern followed is :

A	C	E	G
(+3)	(+3)	(+3)	(+3)
D	F	H	J

Similarly, for QSUW :

Q	S	U	W
(+3)	(+3)	(+3)	(+3)
T	V	X	Z

=&gt; Ans - (A)

**Question 106**

EGIK : FILO :: FHJL : ?

- A JGMP  
 B JGPM  
 C GJPM  
 D GJMP

**Answer: D****Explanation:**

Expression = EGIK : FILO :: FHJL : ?

The pattern followed is :

E	G	I	K
(+1)	(+2)	(+3)	(+4)
F	I	L	O

Similarly, for FHJL :

F	H	J	L
(+1)	(+2)	(+3)	(+4)
G	J	M	P

=> Ans - (D)

### Question 107

10 : 91 :: 9 : ?

A 69

B 82

C 89

D 97

**Answer: B**

#### Explanation:

Expression = 10 : 91 :: 9 : ?

The pattern followed is =  $n : 9n + 1$

Eg = 10 :  $9 \times 10 + 1 = 10 : 91$

Similarly,  $9 \times 9 + 1 = 81 + 1 = 82$

=> Ans - (B)

### Question 108

7:56::9:?

A 63

B 81

C 90

D 99

**Answer: C**

#### Explanation:

Expression = 7:56::9:?

The pattern followed is =  $n : n^2 + n$

Eg = 7 :  $7^2 + 7 = 7 : 56$

Similarly,  $9^2 + 9 = 81 + 9 = 90$

=> Ans - (C)

**Question 109**

**20 : 50 :: 100 : ?**

**A** 150

**B** 250

**C** 200

**D** 156

**Answer: B**

**Explanation:**

Expression = 20 : 50 :: 100 : ?

The pattern followed is =  $n : 2.5n$

Eg = 20 :  $20 \times 2.5 = 20 : 50$

Similarly,  $100 \times 2.5 = 250$

=> Ans - (B)

**Instructions**

In the following questions, find the odd number/letters /number pair from the given alternatives.

**Question 110**

**A** Pathology

**B** Geology

**C** Cardiology

**D** Radiology

**Answer: B**

**Explanation:**

Apart from Geology, all terms given are related to medical science, hence it is the odd one out.

=> Ans - (B)

**Question 111**

**A** Rivulet

- B Stream
- C River
- D Pond

**Answer: D**

**Explanation:**

Rivulet, river and stream are all water bodies formed by natural means, but pond can be formed artificially.

=> Ans - (D)

**Question 112**

- A Konark
- B Madurai
- C Dilwara
- D Ellora

**Answer: D**

**Explanation:**

All except Ellora are famous for temples, while Ellora is famous for caves.

=> Ans - (D)

**Question 113**

- A RTW
- B QOM
- C IKG
- D IKM

**Answer: A**

**Explanation:**

Consonants and vowels are used in the last three options, while only consonants are used in RTW.

=> Ans - (A)

**Question 114**

- A EFH

**B** OPQ

**C** BCE

**D** IJL

**Answer: B**

**Explanation:**

(A) : E (+1 letters) = F (+2 letters) = H

(B) : O (+1 letters) = P (+1 letter) = Q

(C) : B (+1 letters) = C (+2 letters) = E

(D) : I (+1 letters) = J (+2 letters) = L

=> Ans - (B)

**Question 115**

**A** DH

**B** FJ

**C** HK

**D** PR

**Answer: C**

**Explanation:**

(A) : D (+4 letters) = H

(B) : F (+4 letters) = J

(C) : H (+3 letters) = K (odd)

(D) : P (+2 letters) = R

=> Ans - (C)

**Question 116**

**A** 24

**B** 49

**C** 80

**D** 15

**Answer: B**

**Explanation:**

$49 = 7^2$  which is a perfect square number, where as 24, 80, 15 are all non-square numbers.

=> Ans - (B)

### Question 117

A 121

B 324

C 523

D 729

**Answer: C**

#### Explanation:

$$121 = 11^2$$

$$324 = 18^2$$

$$729 = 27^2$$

But 523 is not a perfect square number.

=> Ans - (C)

### Question 118

A 704, 11

B 256, 4

C 832, 13

D 310, 5

**Answer: D**

#### Explanation:

Ratio of each pair is :

$$(A) : \frac{704}{11} = 64$$

$$(B) : \frac{256}{4} = 64$$

$$(C) : \frac{832}{13} = 64$$

$$(D) : \frac{310}{5} = 62$$

=> Ans - (D)

#### Instructions

For the following questions answer them individually

**Question 119**

Arrange the following words in their ascending order, as in a dictionary :

1. Pick
2. Pith
3. Pile
4. Perk
5. Pour

A 4, 1, 2, 3, 5

B 4, 1, 3, 2, 5

C 4, 3, 2, 1, 5

D 5, 4, 3, 2, 1

**Answer: B**

**Explanation:**

As per the order of dictionary :

= Perk -> Pick -> Pile -> Pith -> Pour

≡ 4, 1, 3, 2, 5

=> Ans - (B)

**Question 120**

Arrange the following words in their ascending order :

1. Millenium
2. Diamond Jubilee
3. Silver Jubilee
4. Centenary
5. Golden Jubilee

A 2, 3, 5, 4, 1

B 2, 5, 3, 1, 4

C 3, 5, 2, 4, 1

D 2, 3, 5, 1, 4

**Answer: C**

**Explanation:**

The correct order in ascending order is :

= Silver Jubilee (25 years) -> Golden Jubilee (50 years) -> Diamond Jubilee (75 years) -> Centenary (100 years) -> Millenium (1000 years)

≡ 3, 5, 2, 4, 1

=> Ans - (C)

### Question 121

Arrange the following words in their descending order:

1. Weekly
2. Biannual
3. Fortnightly
4. Monthly
5. Annual

A 1, 3, 4, 2, 5

B 2, 5, 4, 1, 3

C 4, 1, 2, 3, 5

D 5, 2, 4, 3, 1

Answer: D

#### Explanation:

Correct order in descending order :

= Annual (1 year) -> Biannual (6 months) -> Monthly (30 days) -> Fortnightly (15 days) -> Weekly (7 days)

≡ 5, 2, 4, 3, 1

=> Ans - (D)

### Question 122

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

a \_ cbc \_ ca \_ ab \_ bca \_ ab

A babcc

B bcabb

C abcbc

D bcabc

Answer: A

#### Explanation:

The Series is

abc,bca,cab,abc,bca,cab



So letters from option A when placed sequentially in gaps will complete the series.

### Instructions

In the following questions, a series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.

#### Question 123

BCFG JKNO, RSVW, ?

A ZADE

B HIKL

C STUX

D MNPQ

**Answer: A**

#### Explanation:

The Series follows the pattern

BCFG

$B+8, C+8, F+8, G+8 = JKNO$

$J+8, K+8, N+8, O+8 = RSVW$

$R+8, S+8, V+8, W+8 = ZADE$

#### Question 124

CIM, HNR, MSW, \_ ?

A SXA

B RXB

C UYB

D ZEH

**Answer: B**

#### Explanation:

The Series follows the pattern

First Term = CIM

Second term =  $C+5, I+5, M+5 = HNR$

Third term =  $H+5, N+5, R+5 = MSW$

Fourth Term =  $M+5, S+5, W+5 = RXB$

**Question 125**

2, 3, 6, 7, 14, 15, ?

A 16

B 30

C 31

D 32

**Answer: B****Explanation:**

There are two series in the question that start from 2 and 3 respectively

Series 1

2

$$2 + 2^2 = 6$$

$$6 + 2^3 = 14$$

$$14 + 2^4 = 30$$

Series 2

3

$$3 + 2^2 = 7$$

$$7 + 2^3 = 15$$

**Question 126**

3120, ?, 122, 23, 4

A 488

B 621

C 610

D 732

**Answer: B****Explanation:**

The Series follows the pattern

3120

$$(3120 - 15)/5 = 621$$

$$(621 - 11)/5 = 122$$

$$(122 - 7)/5 = 23$$

$$(23 - 3)/5 = 4$$

### Question 127

0, 5, 60, 615, ?

A 6030

B 6170

C 6130

D 6000

**Answer: B**

### Explanation:

The Series follows the pattern

0

$$0 + 5 = 5$$

$$5 + 55 = 60$$

$$60 + 555 = 615$$

$$615 + 5555 = 6170$$

### Instructions

For the following questions answer them individually

### Question 128

**Nitya is Sam's sister. Mogan is Sam's father. Selvan is Rajan's son. Rajan is Mogan's brother. How is Nitya related to Selvan ?**

A Daughter

B Sister

C Cousin

D Wife

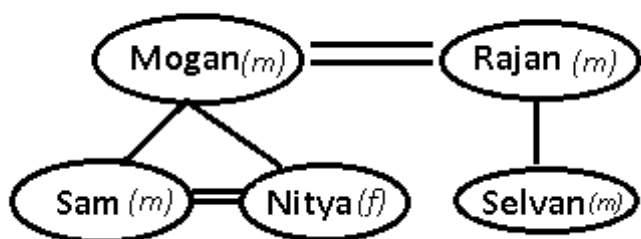
**Answer: C**

### Explanation:

Nitya is Sam's sister and Mogan is Sam's father.

=> Mogan is the father of Sam and Nitya.

Rajan is Mogan's brother and Selvan is Rajan's son.



Thus, Nitya and Selvan are cousins.

=> Ans - (C)

### Question 129

A boy's age is one fourth of his father's age. The sum of the boy's age and his father's age is 35. What will be father's age after 8 years ?

- A 15
- B 28
- C 35
- D 36

Answer: D

#### Explanation:

Let father's age =  $4x$  years

=> Son's age =  $\frac{1}{4} \times 4x = x$  years

Thus, sum of their ages =  $4x + x = 35$

=>  $x = \frac{35}{5} = 7$

∴ Father's age after 8 years =  $4(7) + 8 = 36$  years

=> Ans - (D)

### Question 130

A man said to a lady "Your mother's husband's sister is my aunt". How is the lady related to man ?

- A Sister

- B Mother
- C Daughter
- D Granddaughter

**Answer: A**

**Explanation:**

The lady's mother's husband's sister is that lady's aunt.

Now, according to ques, the man has also the same aunt.

Thus, they are both brothers and sisters.

=> Ans - (A)

**Question 131**

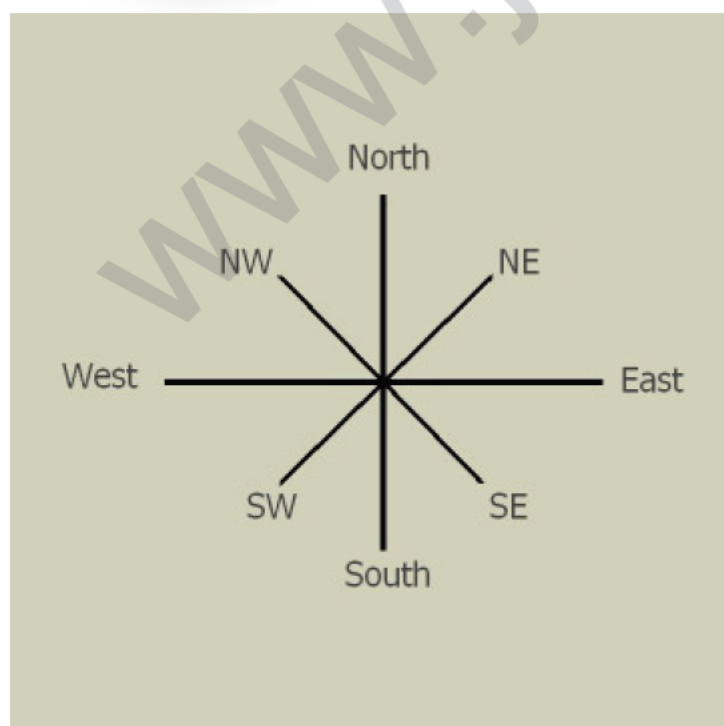
**If South East becomes North, then what will South West become ?**

- A North
- B West
- C East
- D North West

**Answer: C**

**Explanation:**

to solve this we must rotate the following diagram by 135 degrees ACW: then we get the new south west as EAST. therefore the correct answer is option C



**Question 132**

From the given alternatives select the word which cannot be formed using the letters of the given word.

**CONTENTION**

- A TONIC
- B NOTE
- C NATION
- D NOTION

**Answer: C**

**Explanation:**

From the given alternatives all words can be formed using the letters of the given word CONTENTION except for option C as there is no A which can be used in option C.

**Question 133**

in a certain code language, GRAPE is written as 27354 and FOUR is written as 1687.  
How is GROUP written in that code?

- A 27384
- B 27684
- C 27685
- D 27658

**Answer: C**

**Explanation:**

The codes for each letter is given.

Thus, G -> 2

R -> 7

O -> 6

U -> 8

P -> 5

=> GROUP is coded as **27685**

=> Ans - (C)

**Question 134**

WAYIN is written as TXVFK. How LBUK can be written in that code ?

- A IYRII
- B KATJ
- C JZSI
- D NDWM

**Answer: A**

**Explanation:**

on replacing every alphabet of the word WAYIN by the alphabet that is two positions above it in the list of Alphabets, we get TXVFK. on similar lines the word LBUK can be coded as IYRII , which is option A

**Question 135**

In a certain code language, if the word PARTNER is coded as OZQSDMQ, then what is the code for the word SEGMENT ?

- A TFHNFOU
- B RDFLDMS
- C RDELDMS
- D RDFEDNS

**Answer: B**

**Explanation:**

on replacing every alphabet in PARTNER with the preceding one in the Alphabet we get OZQSDMQ therefore, we can apply the same pattern to SEGMENT and the solution we get is RDFLDMS. hence the correct answer is option B

**Question 136**

If DOCTOR is written as FQEVQT, how PATIENT can be written in that code ?

- A RVKGPV
- B RCKPGVV
- C RCVKGPV
- D RVCKGVP

**Answer: C**

**Explanation:**

on replacing every alphabet of DOCTOR with the next to next alphabet in the list we get FQEVQT.  
therefore the same can be applied to PATIENT and the resultant is RCVKGPV.

hence the correct answer is option C

**Instructions**

(3738) : In the following questions, find the missing number.

**Question 137**

21	24	36
11	14	12
3	?	4
77	112	108

A 2

B 4

C 3

D 5

**Answer: C**

**Explanation:**

The column follows the pattern

$$21 \times 11/3 = 77$$

$$36 \times 12/4 = 108$$

Similarly

$$24 \times 14/? = 112$$

$$24 \times 14/112 = ?$$

$$? = 3$$

**Question 138**

12	16	18
16	16	20
5	7	?
197	263	356

A 9



B -4

C 4

D -8

**Answer: B**

**Explanation:**

The column follows the pattern

$$12 \times 16 + 5 = 197$$

$$16 \times 16 + 7 = 263$$

Similarly

$$18 \times 20 + ? = 356$$

$$360 + ? = 356$$

$$? = -4$$

**Instructions**

For the following questions answer them individually

**Question 139**

If + means  $\div$ , - means  $\times$ ,  $\times$  means +,  $\div$  means -, then  $90 + 18 - 6 \times 30 \div 4 = ?$

A 64

B 65

C 56

D 48

**Answer: C**

**Explanation:**

symbols and their meanings are as follows:

+ means  $\div$

- means  $\times$

$\times$  means +

$\div$  means -

therefore the given statement " $90 + 18 - 6 \times 30 \div 4$ " will mean :

$90 \div 18 \times 6 + 30 - 4$ . which by applying BODMAS will be equal to:  $30 + 30 - 4 = 56$ .

the correct option is option C

**Question 140**

If  $73 + 46 = 42$  and  $95 + 87 = 57$ , then  $62 + 80 = ?$

- A 32
- B 48
- C 64
- D 36

**Answer: D**

**Explanation:**

The pattern followed is :

$$73 + 46 = 3[(7 - 3) + (4 + 6)] = 3 \times 14 = 42$$

$$\text{and } 95 + 87 = 3[(9 - 5) + (8 + 7)] = 3 \times 19 = 57$$

$$\text{Similarly, } 62 + 80 = 3[(6 - 2) + (8 + 0)] = 3 \times 12 = 36$$

=> Ans - (D)

**Question 141**

Based on the given data, estimate the number of 'Televisionbuyers' for the year 1990.

1982	1984	1986	1988	1990
447	458	489	540	?

- A 611
- B 591
- C 571
- D 601

**Answer: A**

**Explanation:**

Number of television Buyers in 1982 = 447

Number of Television buyers in 1984 = 458 (447+11)

Number of Television buyers in 1986 = 489 (458+ 11 +20)

Number of Television buyers in 1988 = 540 (489 + 11 +20 +20 )

Number of Television buyers in 1990 = 611 (540 + 11 +20 +20 + 20 )

**Question 142**

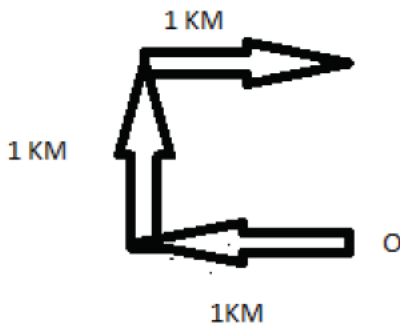
A man coming out of the backdoor of his house which is facing East, walked for one kilometre, turned to his right and walked for another kilometre. Then he turned to his right and walked a kilometre again. Where was he from his house at the end?

- A 1 km away in north
- B 1 km away in south
- C 1 km away in east
- D 1 km away in west

**Answer: A**

**Explanation:**

let the starting point be O. he is facing west as it is the backdoor. now:



AS we can see he will be 1 km north of his original position.

hence the correct answer is option A

**Question 143**

Two squads of soldiers A and B, facing East and West respectively received the following commands - Left Turn, About Turn, Right Turn, Left Turn. Which directions would the squads A and B face at the end ?

- A East, West
- B West, East
- C North, South
- D South, North

**Answer: D**

**Explanation:**

since the two squads are facing opposite directions initially, therefore because they are given same commands they will end up facing opposite directions.

focusing on A's direction after each command.

initially:E  
 Left Turn:North  
 About Turn:South  
 Right Turn:West  
 Left Turn:South

therefore at the end B will end up facing North. hence the correct answer is option D

### Instructions

In the following questions, two statements are given, 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, follow from the given statements.

### Question 144

#### Statements :

1. Due to contamination of water, large number of people were admitted to hospital.
2. The symptoms were of Typhoid.

#### Conclusions :

- I. Contamination of water may lead to Typhoid.
- II. Typhoid is a contagious disease.

- A Only conclusion I is true  
 B Only conclusion II is true  
 C Both conclusions I and II are true  
 D Both conclusions I and II are false

**Answer:** A

#### Explanation:

Contagious disease is spread from one person to another by direct contact. That typhoid is a contagious disease is not deductible from the given statements.

Thus, only conclusion I is true.

=> Ans - (A)

### Question 145

#### Statements :

1. 60% of the government employees went on strike.
2. Mr. Gopal is a government employee.

#### Conclusions :

- I. Mr. Gopal went on strike.
- II. Mr. Gopal did not participate in the strike.

- A Only conclusion I follows
- B Only conclusion II follows
- C Both conclusions I and II follow
- D Either conclusion I or II follows

**Answer: D**

**Explanation:**

It is given in the statements that some of the government employees went on strike. Also, Since Mr. Gopal is a government employee, he either participated or did not participate in the strike.

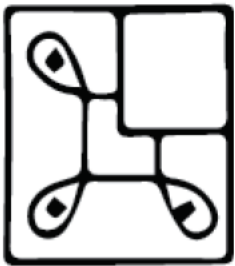
Thus, either conclusion I or II follows.

=> Ans - (D)

**Instructions**

For the following questions answer them individually

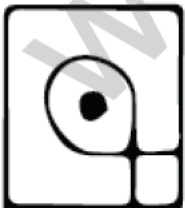
**Question 146**



A

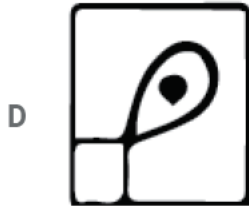


B



C





Answer: D

**Explanation:**

To complete the above figure, we need a square with a balloon shape figure attached to its top right.

=> (A) and (B) are eliminated.

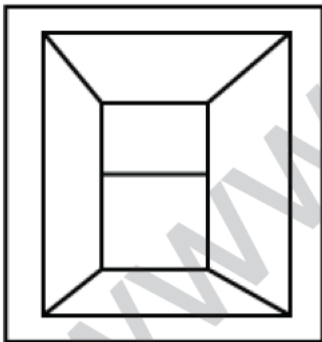
In option (C) the balloon is not a complete curve. Thus, it is also eliminated

Ans - (D)

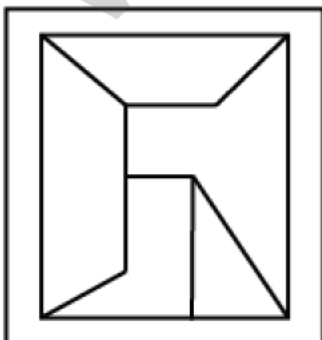
**Question 147**

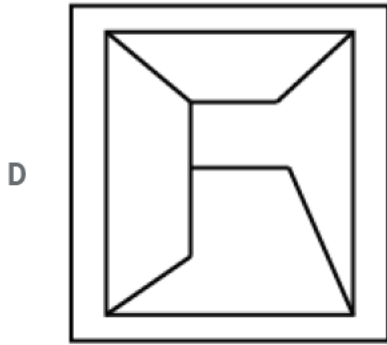
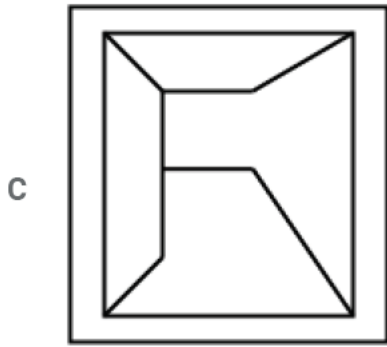


A



B





Answer: B

**Explanation:**

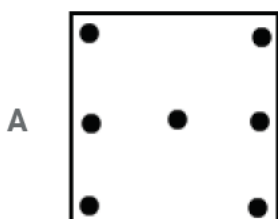
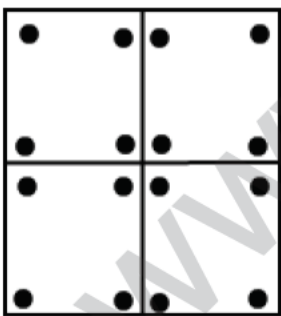
The given figure is a shape of 'F' in which the first horizontal line is slightly larger than the second horizontal line.

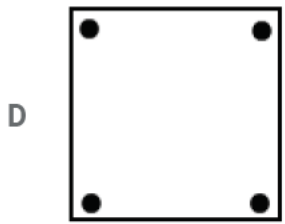
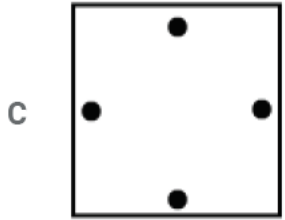
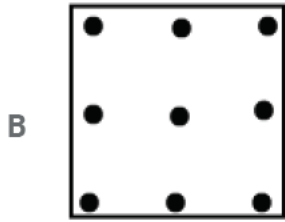
In options (A), (C) & (D), both the horizontal lines are of same length given in the middle of the figures.

Thus, these are eliminated

Ans - (B)

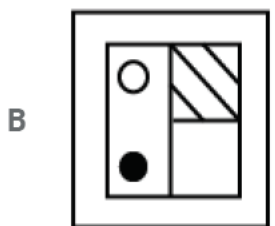
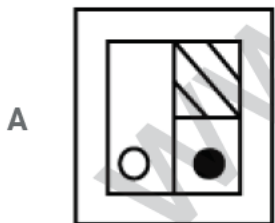
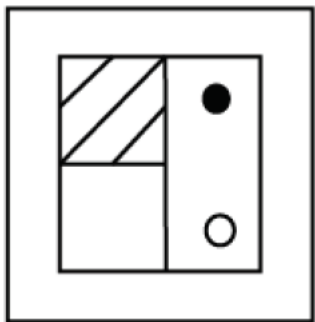
**Question 148**



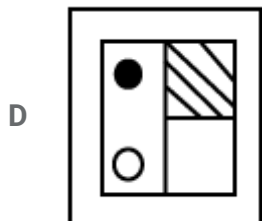
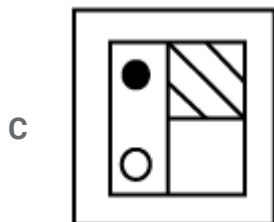


Answer: D

Question 149







Answer: C

**Explanation:**

In the mirror image of the given figure, the black and white dots in the right side of image will be at the left side in the mirror in that order.

=> Thus, (A) and (B) are eliminated.

Now, in the top left box, there are 3 diagonal lines, thus, there will be 3 diagonal lines in top right in the mirror image and not 4 as given in option (D)

=> (D) is also eliminated

Ans - (C)

## Question 150

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 in two matrices given below. 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, e.g., 'T' can be represented by 13, 22, etc. and 'V' can be represented by 67, 76, etc. Similarly, you have to identify the set for the word SHRI.

Matrix I

	0	1	2	3	4
0	R	H	E	L	I
1	I	E	L	R	H
2	H	L	R	I	E
3	E	R	I	H	L
4	L	I	H	E	R

Matrix II

	5	6	7	8	9
5	B	S	N	A	D
6	D	N	B	S	A
7	A	B	D	N	S
8	S	D	A	B	N
9	N	A	S	D	B

- A 58, 02, 13, 01  
 B 85, 42, 31, 14  
 C 68, 20, 13, 32  
 D 85, 02, 44, 30

Answer: C

## Explanation:

- (A) - 58, 02, 13, 01 = AERH  
 (B) - 85, 42, 31, 14 = SHRH  
 (C) - 68, 20, 13, 32 = **SHRI**  
 (D) - 85, 02, 44, 30 = SERE

=> Ans - (C)

## General Awareness

## Instructions

For the following questions answer them individually

**Question 151**

**A movement along the demand curve of a commodity occurs due to change in**

- A income of the consumers
- B its own price
- C taste of the consumers
- D expectations of the consumers

**Answer: B**

**Question 152**

**GNP calculation through Expenditure Method does not include**

- A Gross Domestic Private Investments
- B Net Foreign Investments
- C Depreciation Expenditures
- D Private Consumption Expenditure

**Answer: B**

**Question 153**

**The Cobb Douglas Production function  $Q = AL^a k^{1-a}$  is based on**

- A increasing returns to scale
- B decreasing returns to scale
- C constant returns to scale
- D fluctuating returns to scale

**Answer: C**

**Question 154**

**Find the odd one out of the following :**

- A Delhi Transport Corporation
- B Indian Railways
- C Kingfisher Airlines
- D Reliance Industries Limited

**Answer: D**

**Question 155**

**Monetary Policy in India is laid down and executed by**

- A Union Government
- B ASSOCHAM
- C Reserve Bank of India
- D FICCI

**Answer: C**

**Question 156**

**Which one of the following subjects is not available on the Union List ?**

- A Census
- B Banking
- C Trade Union
- D Foreign Loans

**Answer: C**

**Question 157**

**The term "closure" in Parliamentary terminology implies**

- A the end of session of Parliament
- B stoppage of debate on a motion
- C end of a day's proceedings

D None of the above

**Answer: B**

**Question 158**

**Which of the following is not correctly matched ?**

A Article 14 – Equality before law

B Article 16 – Equal opportunities

C Article 17 – Abolition of titles

D Article 18 – Permission of military titles

**Answer: C**

**Question 159**

**Which of the following Presidents held office for two consecutive terms ?**

A Dr. S. Radhakrishnan

B Dr. Zakir Hussain

C Dr. Rajendra Prasad

D Both (a) and (b)

**Answer: C**

**Question 160**

**Which Amendment Act reduced the voting age from 21 to 18 ?**

A 42nd

B 44th

C 52nd

D 61st

**Answer: D**

**Question 161****Match the Following:**

- a) Vikrama Era
- b) Saka Era
- c) Kalachuri Era
- d) Gupta Era

- 1. AD 248
- 2. AD 320
- 3. 58 BC
- 4. AD 78

- A a-1, b-2, c-3, d-4
- B a-3, b-4, c-1, d-2
- C a-4, b-3, c-2, d-1
- D a-2, b-1, c-4, d-3

**Answer: B****Question 162****Mahavira was the**

- A 21st Tirthankara
- B 24th Tirthankara
- C 23rd Tirthankara
- D 22nd Tirthankara

**Answer: B****Question 163****Which one among the following woman scholars challenged the invincible Yajnavalkya in debate?**

- A Ghosa
- B Apala
- C Maitreyi

**D** Gargi

**Answer: D**

**Question 164**

**Which one of the following event made the crown of England to take over the Indian Administration ?**

**A** Battle of Plassey

**B** Battle of Buxar

**C** The Carnatic Wars

**D** The Sepoy Mutiny

**Answer: D**

**Question 165**

**Who built the famous Dilwara temple at Mount Abu in Rajasthan in the 13th century ?**

**A** Mahendrapala

**B** Mahipala

**C** Rajyapala

**D** Tejapala

**Answer: D**

**Question 166**

**GIS stands for**

**A** Global Institute for Soils

**B** Geographical International Studies

**C** Geographical Information Systems

**D** Global Information Statistics

**Answer: C**

**Question 167**

Which of the following is a Trans Himalayan river ?

- A Ganga
- B Yamuna
- C Sutlej
- D Ravi

**Answer: C**

**Question 168**

Match the following using codes given below :

List I (Forest Type)

- a. Tropical Evergreen
- b. Monsoon
- c. Temperate
- d. Mangrove

List II (Regions)

- 1. Siwaliks
- 2. Shillong
- 3. West Bengal
- 4. Nilgiris

- A a-2, b-4, c-1, d-3
- B a-3, b-1, c-4, d-2
- C a-2, b-1, c-4, d-3
- D a-3, b-4, c-1, d-2

**Answer: C**

**Question 169**

On which river is the Nagarjunasagar Project located ?

- A Krishna
- B Godavari



C Cauvery

D Tapti

**Answer: A**

**Question 170**

**Suez Canal joins**

A Persian Gulf and Arabian Sea

B Red Sea and Mediterranean Sea

C Mediterranean Sea and Black Sea

D Red Sea and Arabian Sea

**Answer: B**

**Question 171**

**Drug which helps to reduce anxiety and brings about calmness is**

A tranquiliser

B diuretic

C analgesic

D antihistamine

**Answer: A**

**Question 172**

**A keel is absent in**

A Chicken

B Ostrich

C Duck

D Peacock

**Answer: C**

**Question 173**

**Broad spectrum antibiotics are produced by**

- A Streptomyces
- B Aspergillus
- C Pencillium
- D Bacillus

**Answer: C**

**Question 174**

**The pigment that protect plants from harmful effect of ultraviolet rays is**

- A Chlorophyll
- B Carotenoid
- C Phycocyanin
- D Plastid

**Answer: C**

**Question 175**

**Glycogen, starch and cellulose are polymers of**

- A Fructose
- B Glucose
- C Lactose
- D Maltose

**Answer: B**

**Question 176**

**Black death is**

- A Cancer
- B Plague
- C AIDS
- D Gonorrhoea

**Answer: B**

#### Question 177

**Stars appear to move from east to west because the**

- A whole universe is moving from east to west
- B earth is revolving round the sun
- C earth is rotating from east to west
- D earth is rotating from west to east

**Answer: D**

#### Question 178

**On the moon, an astronaut cannot drink lemonade with the help of a straw because**

- A acceleration due to gravity on the moon is less
- B there is no atmosphere on the moon
- C lemonade evaporates instantaneously on the moon
- D None of the above

**Answer: B**

#### Question 179

**A particle moving with uniform speed**

- A must have uniform velocity
- B cannot have uniform velocity
- C may have uniform velocity

D will have no velocity

**Answer: C**

#### Question 180

Device which uses sound waves for detection and ranging is called

A Radar

B Sonar

C Pukar

D None of the above

**Answer: A**

#### Question 181

What is the name of the network topology in which there are bidirectional links between each possible node ?

A Ring

B Star

C Tree

D Mesh

**Answer: D**

#### Question 182

LAN stands for

A Local Area Nodes

B Large Area Network

C Large Area Nodes

D Local Area Network

**Answer: D**

**Question 183****Dry Ice is nothing but**

- A Gaseous carbon dioxide
- B Washing soda
- C Solid carbon dioxide
- D Carbon monoxide

**Answer: C****Question 184****Which one of the following is obtained as slag in a blast furnace?**

- A Calcium Carbonate
- B Calcium Sulphate
- C Calcium Chloride
- D Calcium Silicate

**Answer: D****Question 185****When Hydrogen gas is allowed to expand from a region of high pressure to a region of low pressure, the temperature of the gas**

- A decreases to a small extent
- B increases
- C does not change
- D decreases suddenly

**Answer: B****Question 186****In the industrial production of vegetable ghee, the process involved is**

- A dissociation
- B reduction
- C oxidation
- D ionisation

**Answer: B**

#### Question 187

Which of the following weeds has been found useful to check water pollution caused by industrial effluents ?

- A Parthenium
- B Elephant grass
- C Water hyacinth
- D Both (a) and (b)

**Answer: D**

#### Question 188

In which year the Chernobyl Nuclear Power Plant of the former USSR had accident that caused escape of radio nuclides into atmosphere ?

- A 1979
- B 1980
- C 1984
- D 1986

**Answer: D**

#### Question 189

Certain desert lizards excrete their wastes in dry form. This serves as a means of

- A protective mechanism against their predators

- B limiting factor of the organism
- C adaptation of the organism to the environment
- D countering the problem of food scarcity

**Answer: C**

**Question 190**

**Which one is regarded as "World heritage forest" ?**

- A Nandan Kanan in Odisha
- B Kaziranga in Assam
- C Sundarbans in West Bengal
- D Indian Botanical Garden,

**Answer: C**

**Question 191**

**Shibpur in West Bengal Kidney can be taken from a dying person who has the**

- A cessation of neurological function only
- B cessation of cardiac function only
- C cessation of respiratory function only
- D cessation of kidney function only

**Answer: A**

**Question 192**

**There is no life on moon because it has no**

- A Nitrogen
- B Sulphur
- C Oxygen
- D Water

**Answer: D**

**Question 193**

**Losoong is a festival celebrated in**

- A Tibet
- B Arunachal Pradesh
- C Sikkim
- D Kerala

**Answer: C**

**Question 194**

**The commodity for which India spends the largest amount to import is**

- A Foodgrains
- B Crude petroleum
- C Fertilisers
- D Iron and Steel

**Answer: B**

**Question 195**

**In which categories did Marie Curie win her two different Nobel Prizes ?**

- A Physics and Chemistry
- B Chemistry and Medicine
- C Physics and Medicine
- D Chemistry and Peace

**Answer: A**

**Question 196**

**Michael Phelps won gold medals in swimming events in the Beijing Olympics.**



- A 6
- B 7
- C 8
- D 9

**Answer: C**

#### Question 197

Spot the odd one from the following :

- A Tarapur
- B Trombay
- C Kalpakkam
- D Narora

**Answer: B**

#### Question 198

Which one of the following players has the unique distinction of winning 50 Doubles Titles in ATP tour history ?

- A Leander Pees
- B Andy Roddick
- C Novak Djokovic
- D Roger Federer

**Answer: A**

#### Question 199

As per the 2011 census, the state with the largest gap in male and female literacy is

- A Uttar Pradesh
- B Madhya Pradesh

**C** Rajasthan

**D** Kerala

**Answer: C**

**Question 200**

**Which among the following is termed 'Hot Money' ?**

**A** FII

**B** FDI

**C** ADR

**D** GDR

**Answer: A**







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