



2016 SSC CGL 03 Sep Evening Shift

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General Awareness

Instructions

For the following questions answer them individually

Question 1

During whose Viceroyalty, the capital of India was shifted from Calcutta to Delhi?

- A Lord Canning
- B Lord Harding
- C Lord Lytton
- D Lord Clive

Answer: B

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Question 2

Who among the following was the court physician of Kanishka?

- A Vasumitra
- B Nagarjuna
- C Charaka
- D Patanjali

Answer: C

Question 3

The region which is a water divide between the Ganga and Indus river systems is _____

- A Haridwar
- B Namchobarva
- C Alakananda
- D Ambala

Answer: D

Question 4

Subordinate courts are supervised by _____

- A Supreme Court
- B District Court
- C High Court
- D Parliament

Answer: C

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Question 5

Which of the following is the world's top environmental conservation award?

- A Golden Bear Award
- B Golden Panda Award
- C Golden Globe Award
- D Golden Palms Award

Answer: B

Question 6

A galvanometer can be converted to a voltmeter by connecting

- A a high resistance in parallel
- B a high resistance in series
- C a low resistance in series
- D a low resistance in parallel

Answer: B

Question 7

Bee sting contains _____

- A An acidic liquid
- B a salt solution
- C an alkaline liquid
- D a corrosive liquid

Answer: A

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Question 8

Which scheduling service is used to handle traffic with different priorities?

- A Traffic management
- B QoS traffic scheduling
- C QoS Scheduler
- D QoS Manager

Answer: B

Question 9

The outer most layer of Sun is known as _____

- A Chromosphere
- B Photosphere
- C Radioactive zone
- D Corona

Answer: D

Question 10

Highest percentage of carbon is found in which form of coal?

- A Anthracite
- B Bituminous
- C Peat
- D lignite

Answer: A

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Question 11

Which country has the largest internet users?

- A USA
- B China
- C India
- D Russia

Answer: B

Question 12

The xylem in plants is responsible for which action?

- A transport of water
- B transport of food
- C transport of amino acids
- D transport of oxygen

Answer: A

Question 13

Which of the following cities is the new capital of Seemaandhra?

- A Amaravati
- B Secunderabad
- C Vijayawada
- D Vishakhapatnam

Answer: A

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Question 14

Which State Government has recently abolished "agriculture income tax"

- A Karnataka
- B Rajasthan
- C Bihar
- D Assam

Answer: A

Question 15

Which of the following is not a method of estimating national income?

- A Expenditure method
- B Output method
- C Matrix method
- D Income method

Answer: C

Question 16

If the name of a tribe has to be excluded from the list of Scheduled Tribe, who has the power for such exclusion?

- A President
- B Parliament
- C National Commission for Scheduled Tribes
- D Union Council of Ministers

Answer: B

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Question 17

Project 'Sankalp' started for the purpose_____

- A To eradicate illiteracy
- B To eradicate Polio
- C To eliminate AIDS/HIV
- D To eliminate unemployment

Answer: C

Question 18

Ring of Fire is found commonly in which ocean?

- A Pacific Ocean
- B Atlantic Ocean
- C Indian Ocean
- D Arctic Ocean

Answer: A

Question 19

Which of the following bacterium causes crown gall disease in plants?

- A Bacillus thurigiensis
- B Agrobacterium tumefaciens
- C Pseudomonas fluorescens
- D None of these

Answer: B

General Science Notes for SSC CGL

Question 20

Eustachian Tube is located in which part of human body?

- A Nose
- B Ear
- C Eyes
- D Throat

Answer: B

Question 21

Which part of the brain plays an important role in motor control?

- A Cerebellum
- B Cerebrum

C Medulla

D Pons

Answer: A

Question 22

The frequency of direct current is _____

A Zero

B 50 HZ

C 60 HZ

D 100 HZ

Answer: A

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Question 23

The veda which deals with the rituals is known as _____

A Rigveda

B Yajurveda

C Samaveda

D Atharvaveda

Answer: B

Question 24

Prime Minister's 'Ujjwala Yojana' is related to _____

A Free distribution of LPG connections to socially backward classes.

B Free electric connections to members of Scheduled Castes and Scheduled Tribes.

C Mass immunisation campaign for children.

D None of the these.

Answer: A

Question 25

'Agronomy' is the practice of raising _____

A Plants and Animals

B Crop plants

C Agriculture

D Fruit plants only

Answer: A

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English

Instructions

For the following questions answer them individually

Question 26

In the following question, out of the four alternatives, choose the word which best expresses the meaning of the given word and click the button corresponding to it.

SYCOPHANT

- A PSYCHE
- B FLATTERER
- C CRITIC
- D SLAVE

Answer: B

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Question 27

In the following question, out of the four alternatives, choose the word which is opposite in meaning to the given word and click the button corresponding to it.

FORLORN

- A JOYFUL
- B LUCKY
- C FORTUNATE
- D FREE

Answer: A

Question 28

Four words are given, out of which only one word is spelt correctly. Choose the correctly spelt word and click the button corresponding to it.

- A Separate
- B Saparate
- C Saperate
- D Seperate

Answer: A

Question 29

In the following questions, one part of the sentence may have an error. Find out which part of the sentence has an error and click the button corresponding to it. If the sentence is free from error, click the "No error" option.

The book, being written (a) / in simple language, is suitable for children (b) / as it contains many good advices. (c) / No error (d)

- A The book, being written
- B in simple language, is suitable for children
- C as it contains many good advices.
- D No error

Answer: C

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Question 30

In the following questions, one part of the sentence may have an error. Find out which part of the sentence has an error and click the button corresponding to it. If the sentence is free from error, click the "No error" option.

You are the man (a) / who have (b) / spoiled it (c) / No error (d)

- A You are the man
- B who have
- C spoiled it
- D No error

Answer: B

Question 31

In the following questions, one part of the sentence may have an error. Find out which part of the sentence has an error and click the button corresponding to it. If the sentence is free from error, click the "No error" option.

Everyday new inventions (a) / is make (b) / for the good of humanity (c) / No error (d)

- A Everyday new inventions
- B is make
- C for the good of humanity
- D No error

Answer: B

Question 32

The sentences given with blanks are to be filled with an appropriate word(s). Four alternatives are suggested for each question. For each question, choose the correct alternative and click the button corresponding to it.

The man was _____ his deafness

- A rewarded for
- B cured of

C convicted by

D saved at

Answer: B

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Question 33

The sentences given with blanks are to be filled with an appropriate word(s). Four alternatives are suggested for each question. For each question, choose the correct alternative and click the button corresponding to it.

He is the talk _____

A of the town

B for the town

C about the town

D over the town

Answer: A

Question 34

The sentences given with blanks are to be filled with an appropriate word(s). Four alternatives are suggested for each question. For each question, choose the correct alternative and click the button corresponding to it.

I _____ very much like to see my old classmates.

A can

B should

C would

D might

Answer: C

Question 35

In each of the questions, four alternatives are given for the Idiom/Phrase. Choose the alternative which best expresses the meaning of the Idiom/Phrase and click the button corresponding to it.

Old head on young shoulders

A To be intelligent when old

B To be old and yet look young

C To be wise beyond his years

D To be smarter with age

Answer: C

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Question 36

In each of the questions, four alternatives are given for the Idiom/Phrase. Choose the alternative which best expresses the meaning of the Idiom/Phrase and click the button corresponding to it.

A wild-goose chase

- A A fruitful search
- B A pointless search
- C To search for a wild-goose
- D A hunting expedition

Answer: B

Question 37

In each of the questions, four alternatives are given for the Idiom/Phrase. Choose the alternative which best expresses the meaning of the Idiom/Phrase and click the button corresponding to it.

Hard of hearing

- A To be disturbed
- B To be confused
- C To be deaf
- D To be dumb

Answer: C

Question 38

Out of the four alternatives, choose the one which can be substituted for the given words/sentences and click the button corresponding to it.

The art of delaying

- A Degeneration
- B Inflation
- C Procrastination
- D Regression

Answer: C

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Question 39

Out of the four alternatives, choose the one which can be substituted for the given words/sentences and click the button corresponding to it.

A doctor who specializes in the diseases of the eyes

- A Ophthalmologist
- B Optimist

- C Optician
- D Orthodontist

Answer: A

Question 40

Out of the four alternatives, choose the one which can be substituted for the given words/sentences and click the button corresponding to it.

Person who eats too much

- A Cannibal
- B Glutton
- C Obese
- D Carnivorous

Answer: B

Question 41

A sentence/a part of the sentence is underlined. Four alternatives are given to the underlined part which will improve the sentence. Choose the correct alternative and click the button corresponding to it. In case no improvement is needed, click the button corresponding to "No improvement".

The old woman invited the children to become a part in the celebration in her house

- A to be apart
- B to take part
- C to take apart
- D No improvement

Answer: B

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Question 42

A sentence/a part of the sentence is underlined. Four alternatives are given to the underlined part which will improve the sentence. Choose the correct alternative and click the button corresponding to it. In case no improvement is needed, click the button corresponding to "No improvement".

You are junior than me in age

- A to me in
- B of me in
- C to me at
- D No improvement

Answer: A

Question 43

A sentence/a part of the sentence is underlined. Four alternatives are given to the underlined part which will improve the sentence. Choose the correct alternative and click the button corresponding to it. In case no improvement is needed, click the button corresponding to "No improvement".

Wealth is no doubts necessary for happiness in life.

- A was no doubt necessary
- B is no doubt necessary
- C is no doubting necessary
- D No improvement

Answer: B

Question 44

A sentence/a part of the sentence is underlined. Four alternatives are given to the underlined part which will improve the sentence. Choose the correct alternative and click the button corresponding to it. In case no improvement is needed, click the button corresponding to "No improvement".

Mumbai is larger than many other towns in India.

- A large
- B largest
- C big
- D No improvement

Answer: D

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Question 45

A sentence/a part of the sentence is underlined. Four alternatives are given to the underlined part which will improve the sentence. Choose the correct alternative and click the button corresponding to it. In case no improvement is needed, click the button corresponding to "No improvement".

All people want to be happy, do they?

- A don't they?
- B are they?
- C didn't they?
- D No improvement

Answer: A

Instructions

A passage is given with 5 questions following it. Read the passage carefully and choose the best answer to each question out of the four alternatives and click the button corresponding to it.

Worry is a very common thing. Even children worry as much as grown up people. In his childhood, the writer used to fear that his parents would die suddenly at night. His fear and anxiety was just imaginary.

When he was on the war front in Mesopotamia, the writer came to a certain conclusion on worrying. He was a subaltern officer. It was

not his duty to plan future actions of war. He was there only to carry out what the superiors would decide. So it was useless to worry. When he took that stand he slept soundly without worry. Here, the writer had some real reason to worry. But he could get rid of it when he found it was useless to worry.

He followed the same principle when he was a prisoner of war and he was in Asiatic Turkey. There, too, he banished his worries because nothing of his future depended on himself. The future of the prisoners of war would depend on the various governments. Thus he was able to live there without much worry though he was a prisoner.

But his deliberate suppression of worry during the war and as a prisoner did not wholly eradicate his worries. The fear had gone to his subconscious mind and remained there buried. After the war the writer was at home. But whenever a member of his family was absent he feared all sorts of mishap happening to him or her. Moreover, he had a recurring nightmare that he had become a prisoner of war and the war was not going to end. The worries without any real cause here were the manifestations of the fears that he had banished deliberately earlier.

Question 46

Why was the writer able to live in jail without much worry?

- A Because nothing of his future depended on himself
- B He was comfortable in jail
- C Because he was a prisoner of war
- D Because worry is a common thing

Answer: A

Question 47

What was the fear of the writer in his childhood?

- A That his parents might drive him out of home
- B That his parents would die suddenly at night
- C That he might fail in the examinations
- D That he might be made a prisoner

Answer: B

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Question 48

Where was the writer when he concluded that worry was useless?

- A The writer was in Asiatic Turkey
- B The writer was at home
- C The writer was on the war front in Mesopotamia
- D The writer was in prison

Answer: C

Question 49

What was the recurring nightmare of the writer after the war was over?

- A He dreamt that he was a prisoner in a war that was not going to be over

- B He dreamt that his wife was in hospital
- C He dreamt that a member of his family had a mishap
- D He dreamt he was a prisoner of war in Asiatic Turkey

Answer: A

Question 50

How does a cause of worry trouble us if we suppress our worry deliberately?

- A Causes of worry trouble us in various circumstances
- B Causes of worry remain in the subconscious mind and trouble us through bad dreams
- C Causes of worry cause imaginary anxiety
- D We cannot take actions cautiously and carefully

Answer: B

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Mathematics

Instructions

For the following questions answer them individually

Question 51

The sum of two positive integers is 80 & difference between them is 20. Then what is difference of squares of those numbers ?

- A 1400
- B 1600
- C 1800
- D 2000

Answer: B

Explanation:

Let the positive integers be x and y

$$\text{Sum} = x + y = 80 \text{ ----(i)}$$

$$\text{Difference} = x - y = 20 \text{ ----(ii)}$$

$$\therefore \text{Difference of squares} = x^2 - y^2 = (x + y)(x - y)$$

$$= 80 \times 20 = 1600$$

=> Ans - (B)

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Question 52

The difference between the selling prices of an article sold at 4% and 3% profits is 3. The cost price of the article is :

- A 400

B 350

C 300

D 100

Answer: C

Explanation:

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

When profit % = 4%

$$\Rightarrow \text{Selling price} = \frac{104}{100} \times 100x = Rs. 104x$$

Similarly, when profit % = 3%

$$\Rightarrow \text{Selling price} = \frac{103}{100} \times 100x = Rs. 103x$$

According to ques,

$$\Rightarrow 104x - 103x = 3$$

$$\Rightarrow x = 3$$

$$\therefore \text{Cost price} = 100 \times 3 = Rs. 300$$

\Rightarrow Ans - (C)

Question 53

In a school there are 1500 students, 44% of them are girls. Monthly fee of each boy is 540 and fee of each girl is 25% less than that of a boy. The sum of fees of boys & girl is

A 720600

B 720800

C 720900

D 721000

Answer: C

Explanation:

Total students = 1500

$$\text{Number of girls} = \frac{44}{100} \times 1500 = 660$$

$$\Rightarrow \text{Number of boys} = 1500 - 660 = 840$$

Fees of each boy = Rs. 540

$$\Rightarrow \text{Fees of each girl} = \frac{75}{100} \times 540 = Rs. 405$$

$$\therefore \text{Total fees of boys and girls} = (840 \times 540) + (660 \times 405)$$

$$= 4,53,600 + 2,67,300 = Rs. 7,20,900$$

\Rightarrow Ans - (C)

Question 54

The time for a train of length 110 metres running at the speed of 72 km/hr to cross a bridge of length 132 metres is

A 9.8 sec

B 12.1 sec

C 12.42 sec

D 14.3 sec

Answer: B

Explanation:

Speed of train = 72 km/hr

$$= (72 \times \frac{5}{18}) \text{ m/sec}$$

$$= 20 \text{ m/sec}$$

Length of train = 110 m and length of bridge = 132 m

Using, time = distance/speed

$$\Rightarrow t = \frac{(110+132)}{20}$$

$$\Rightarrow t = \frac{242}{20} = 12.1 \text{ sec}$$

\(\Rightarrow\) Ans - (B)

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Question 55

Simplify the equation $\frac{(0.73)^3 + (0.27)^3}{(0.73)^2 + (0.27)^2 - (0.73) \times (0.27)}$

A 1

B 0.4087

C 0.73

D 0.27

Answer: A

Explanation:

$$\text{Expression : } \frac{(0.73)^3 + (0.27)^3}{(0.73)^2 + (0.27)^2 - (0.73) \times (0.27)}$$

Let $x = 0.73$ and $y = 0.27$

$$= \frac{x^3 + y^3}{x^2 + y^2 - xy}$$

Multiplying both numerator and denominator by $(x + y)$

$$= \frac{(x+y)(x^3 + y^3)}{(x+y)(x^2 + y^2 - xy)}$$

Using, $(x^3 + y^3) = (x + y)(x^2 + y^2 - xy)$

$$= \frac{(x+y)(x^3 + y^3)}{x^3 + y^3} = (x + y)$$

$$= 0.73 + 0.27 = 1$$

\(\Rightarrow\) Ans - (A)

Question 56

If $x + \frac{1}{x} = -2$, then the value of $x^7 + \frac{1}{x^7}$ is

A 1

B -1

C 0

D -2

Answer: D

Explanation:

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

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

$$\Rightarrow x^2 + 1 + 2x = 0$$

$$\Rightarrow (x + 1)^2 = 0$$

$$\Rightarrow x = -1$$

$$\text{To find : } x^7 + \frac{1}{x^7}$$

$$= (-1)^7 + (-1)^7$$

$$= -1 - 1 = -2$$

\Rightarrow Ans - (D)

Question 57

In a circle, two arcs of unequal length subtend angles in the ratio 5:3. If the smaller angle is 45° then the measure of other angle in degrees.

A 75°

B 72°

C 60°

D 78°

Answer: A

Explanation:

Let the angles subtended by the arcs be $5x^\circ$ and $3x^\circ$

$$\Rightarrow \text{Smaller angle} = 3x = 45^\circ$$

$$\Rightarrow x = \frac{45}{3} = 15^\circ$$

$$\therefore \text{Larger angle} = 5 \times 15 = 75^\circ$$

\Rightarrow Ans - (A)

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Question 58

The orthocentre of an obtuse-angled triangle lies

A inside the triangle

B outside the triangle

C on one side of a triangle

D none of these

Answer: B

Explanation:

The orthocentre of obtuse triangle lies outside the triangle, of an acute angled triangle lies inside and of a right angled triangle lies at the vertex containing right angle.

=> Ans - (B)

Question 59

If $a \cdot \sin 45^\circ \cdot \cos 45^\circ \cdot \tan 60^\circ = \tan^2 45^\circ - \cos 60^\circ$ then find the value of a ?

- A $\frac{1}{\sqrt{3}}$
- B $\sqrt{3}$
- C 1
- D $\frac{\sqrt{3}}{2}$

Answer: A

Explanation:

Expression : $a \cdot \sin 45^\circ \cdot \cos 45^\circ \cdot \tan 60^\circ = \tan^2 45^\circ - \cos 60^\circ$

$$\Rightarrow a \times \left(\frac{1}{\sqrt{2}}\right) \times \left(\frac{1}{\sqrt{2}}\right) \times (\sqrt{3}) = (1)^2 - \left(\frac{1}{2}\right)$$

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

$$\Rightarrow a = \frac{1}{2} \times \frac{2}{\sqrt{3}}$$

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

=> Ans - (A)

Question 60

Ganesh, Ram and Sohan together can complete a work in 16 days. If Ganesh and Ram together can complete the same work in 24 days. The number of days Sohan alone takes, to finish the work is

- A 40
- B 48
- C 32
- D 30

Answer: B

Explanation:

Let total work to be done = 48 units

Let Ganesh, Ram and Sohan's efficiency respectively be g , r and s units/day

Ganesh, Ram and Sohan together can complete a work in 16 days

$$\Rightarrow g + r + s = \frac{48}{16} = 3 \text{ units/day} \text{ -----(i)}$$

$$\text{Similarly, } g + r = \frac{48}{24} = 2 \text{ units/day} \text{ -----(ii)}$$

Subtracting equation (ii) from (i),

$$\Rightarrow s = 3 - 2 = 1 \text{ unit/day}$$

$$\therefore \text{ Time taken by Sohan alone to finish the work} = \frac{48}{1} = 48 \text{ days}$$

=> Ans - (B)

General Science Notes for SSC CGL

Question 61

The radius of base of a right circular cone is 6cm and its slant height is 10cm. Then its volume is ? (use $\pi = 22/7$)

- A 301.71 cm³
- B 310.71 cm³
- C 301.17 cm³
- D 310.17 cm³

Answer: A

Explanation:

Radius of cone = $r = 6$ cm

Slant height of cone = $l = 10$ cm

Let h be the height of cone

$$\Rightarrow (h)^2 = (l)^2 - (r)^2$$

$$\Rightarrow (h)^2 = (10)^2 - (6)^2 = 100 - 36$$

$$\Rightarrow h = \sqrt{64} = 8 \text{ cm}$$

$$\therefore \text{Volume of cone} = \frac{1}{3} \pi r^2 h$$

$$= \frac{1}{3} \times \frac{22}{7} \times (6)^2 \times 8$$

$$= \frac{96 \times 22}{7} = 301.71 \text{ cm}^3$$

\Rightarrow Ans - (A)

Question 62

A shop keeper allows 20% discount on the marked price on his articles. Find the marked price of an article for which he charges 740

- A 725
- B 875
- C 925
- D 1040

Answer: C

Explanation:

Selling price = Rs. 740

Discount % = 20%

$$\Rightarrow \text{Marked price} = 740 \times \frac{100}{(100-20)}$$

$$= 740 \times \frac{5}{4} = \text{Rs. } 925$$

\Rightarrow Ans - (C)

Question 63

A truck covers a distance of 550 metres in one minute where as a bus covers a distance of 33 km in $3/4$ hours. Then the ratio of their speeds is

- A 1:3
- B 2:3
- C 3:4
- D 1:4

Answer: C

Explanation:

Distance covered by truck in 1 minute = $550 \text{ m} = \frac{550}{1000} = \frac{11}{20} \text{ km}$

Time taken by bus = $\frac{3}{4} \times 60 = 45 \text{ minutes}$

Distance covered by bus in 45 minutes = 33 km

Thus, distance covered in 1 minute = $\frac{33}{45} = \frac{11}{15} \text{ km}$

\therefore Ratio of speeds of trucks and bus

$$= \frac{11}{20} \div \frac{11}{15}$$

$$= \frac{11}{20} \times \frac{15}{11} = \frac{15}{20}$$

$$= \frac{3}{4} = 3 : 4$$

\Rightarrow Ans - (C)

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Question 64

Seven years ago, the average age of A, B and C was 51 years. If A is 3 years older than B and B is 3 years older than C then the present ages of A, B and C are (in year)

- A 61, 58 and 55
- B 54, 51, and 48
- C 55, 58, and 61
- D 48, 51 and 54

Answer: A

Explanation:

Let C's present age = x years

\Rightarrow B's present age = $(x + 3)$ years

\Rightarrow A's present age = $(x + 6)$ years

Average age 7 years ago = 51

$$\Rightarrow \frac{(x-7)+(x+3-7)+(x+6-7)}{3} = 51$$

$$\Rightarrow (x - 7) + (x - 4) + (x - 1) = 51 \times 3 = 153$$

$$\Rightarrow 3x - 12 = 153$$

$$\Rightarrow 3x = 153 + 12 = 165$$

$$\Rightarrow x = \frac{165}{3} = 55 \text{ years}$$

\therefore A's age = $55 + 6 = 61$ years

B's age = $55 + 3 = 58$ years

C's age = 55 years

=> Ans - (A)

Question 65

If $a^2 + b^2 + c^2 = 14$ and $a + b + c = 6$, then the value of $(ab + bc + ca)$ is,

A 11

B 12

C 13

D 14

Answer: A

Explanation:

Given : $a^2 + b^2 + c^2 = 14$ and $a + b + c = 6$ -----(i)

Using, $(a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$

Substituting values from equation (i),

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

=> $2(ab + bc + ca) = 36 - 14 = 22$

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

=> Ans - (A)

Question 66

If $\frac{a}{b} + \frac{b}{a} = 1$, then the value of $a^3 + b^3$ is

A 1

B 0

C -1

D 2

Answer: B

Explanation:

Given : $\frac{a}{b} + \frac{b}{a} = 1$

=> $\frac{a^2 + b^2}{ab} = 1$

=> $a^2 + b^2 = ab$ -----(i)

We know that, $(a^3 + b^3) = (a + b)(a^2 + b^2 - ab)$

Substituting value from equation (i), we get :

=> $(a^3 + b^3) = (a + b)(ab - ab)$

=> $(a^3 + b^3) = (a + b) \times 0 = 0$

=> Ans - (B)

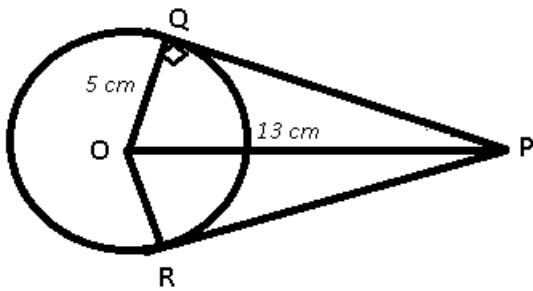
Question 67

If O is the centre of a circle of radius 5 cm. At a distance of 13 cm from O , a point P is taken. From this point, two tangents PQ and PR are drawn to the circle. Then, the area of quadrilateral $PQOR$ is

- A 60cm^2
- B 32.5cm^2
- C 65cm^2
- D 30cm^2

Answer: A

Explanation:



Given : $OQ = 5\text{ cm}$ and $OP = 13\text{ cm}$

To find : $\text{ar}(PQOR) = ?$

Solution : The radius intersects the tangent at the circumference of the circle at right angle.

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

In $\triangle PQO$

$$\Rightarrow (PQ)^2 = (OP)^2 - (OQ)^2$$

$$\Rightarrow (PQ)^2 = (13)^2 - (5)^2$$

$$\Rightarrow (PQ)^2 = 169 - 25 = 144$$

$$\Rightarrow PQ = \sqrt{144} = 12\text{ cm}$$

Similarly, $PR = 12\text{ cm}$

$$\therefore \text{Area of quad}(PQOR) = \text{ar}(\triangle POQ) + \text{ar}(\triangle POR)$$

$$= PQ \times OQ$$

$$= 12 \times 5 = 60\text{ cm}^2$$

\Rightarrow Ans - (A)

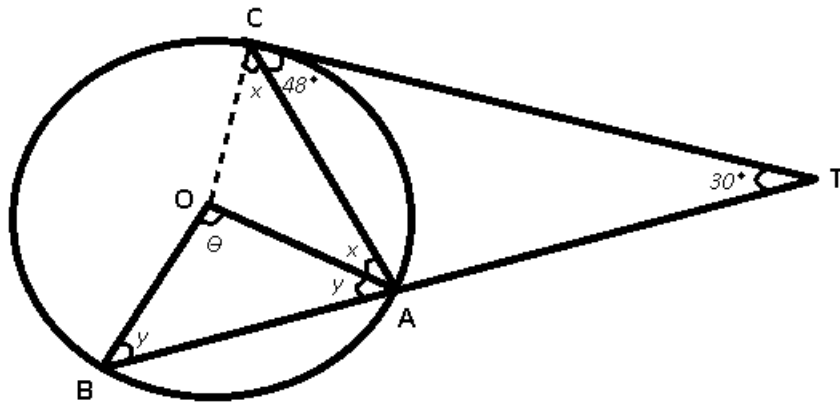
Question 68

A , B and C are three points on a circle with centre O . The tangent at C meets BA produced at T . If $\angle ATC = 30^\circ$ and $\angle ACT = 48^\circ$, then what is the value of $\angle AOB$?

- A 78°
- B 96°
- C 102°
- D 108°

Answer: D

Explanation:



Given : $\angle ATC = 30^\circ$ and $\angle ACT = 48^\circ$

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

Solution : $OA = OC = \text{radius}$

$\Rightarrow \angle OAC = \angle OCA = x$

Similarly, $\angle OAB = \angle OBA = y$

In $\triangle ACT$,

$\Rightarrow \angle ACT + \angle ATC + \angle CAT = 180^\circ$

$\Rightarrow 48^\circ + 30^\circ + \angle CAT = 180^\circ$

$\Rightarrow \angle CAT = 180^\circ - 78^\circ = 102^\circ$ -----(i)

Also, radius intersects the tangent at the circumference of the circle at right angle.

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

$\Rightarrow x + 48^\circ = 90^\circ$

$\Rightarrow x = 90^\circ - 48^\circ = 42^\circ$ -----(ii)

Now, at point A, $\Rightarrow y + x + \angle CAT = 180^\circ$ [Supplementary angles]

Using equations (i) and (ii),

$\Rightarrow y + 42^\circ + 102^\circ = 180^\circ$

$\Rightarrow y = 180^\circ - 144^\circ = 36^\circ$ -----(iii)

In $\triangle AOB$,

$\Rightarrow \angle OBA + \angle OAB + \angle AOB = 180^\circ$

$\Rightarrow y + y + \theta = 180^\circ$

Using equation (iii), we get ;

$\Rightarrow (2 \times 36^\circ) + \theta = 180^\circ$

$\Rightarrow \theta = 180^\circ - 72^\circ = 108^\circ$

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

Question 69

If $3\sin\theta + 4\cos\theta = 5$ ($0 < \theta < 90^\circ$) then the value of $\sin\theta$ is

A $\frac{1}{5}$

B $\frac{2}{5}$

C $\frac{3}{5}$

D $\frac{4}{5}$

Answer: C

Explanation:

$$\text{Expression : } 3\sin\theta + 4\cos\theta = 5$$

$$\Rightarrow 4\cos\theta = 5 - 3\sin\theta$$

Squaring both sides,

$$\Rightarrow (4\cos\theta)^2 = (5 - 3\sin\theta)^2$$

$$\Rightarrow 16\cos^2\theta = 25 + 9\sin^2\theta - 30\sin\theta$$

$$\Rightarrow 16(1 - \sin^2\theta) = 25 + 9\sin^2\theta - 30\sin\theta$$

$$\Rightarrow 16 - 16\sin^2\theta = 25 + 9\sin^2\theta - 30\sin\theta$$

$$\Rightarrow 25\sin^2\theta - 30\sin\theta + 9 = 0$$

$$\Rightarrow (5\sin\theta - 3)^2 = 0$$

$$\Rightarrow 5\sin\theta = 3$$

$$\Rightarrow \sin\theta = \frac{3}{5}$$

\Rightarrow Ans - (C)

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Question 70

Two men standing on same side of a pillar 75 metre high, observe the angles of elevation of the top of the pillar to be 30° and 60° respectively the distance between two men is

A $50\sqrt{3}$ m

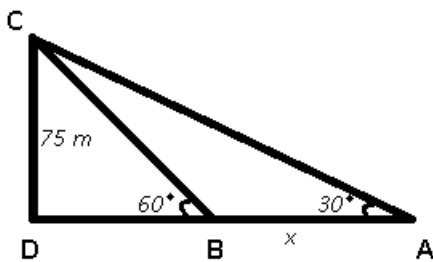
B 100

C $\frac{75}{\sqrt{3}}$ m

D $25\sqrt{3}$ m

Answer: A

Explanation:



Given : CD is the pillar = 75 m

To find : $AB = x = ?$

Solution : In $\triangle BCD$,

$$\Rightarrow \tan(60^\circ) = \frac{CD}{DB}$$

$$\Rightarrow \sqrt{3} = \frac{75}{DB}$$

$$\Rightarrow DB = \frac{75}{\sqrt{3}}$$

$$\Rightarrow DB = 25\sqrt{3} \text{-----(i)}$$

Again, in $\triangle ACD$,

$$\Rightarrow \tan(30^\circ) = \frac{CD}{AD}$$

$$\Rightarrow \frac{1}{\sqrt{3}} = \frac{75}{x+25\sqrt{3}} \text{ [Using (i)]}$$

$$\Rightarrow x + 25\sqrt{3} = 75\sqrt{3}$$

$$\Rightarrow x = 75\sqrt{3} - 25\sqrt{3} = 50\sqrt{3} \text{ m}$$

\Rightarrow Ans - (A)

Question 71

The difference between compound interest and simple interest on Rs. 5000 for 2 years at 8% per annum payable yearly is

A Rs.30

B Rs.31

C Rs.33

D Rs.32

Answer: D

Explanation:

Principal (P) = Rs. 5000

Rate of interest (r) = 8% and time period (t) = 2 years

$$\text{Simple interest} = \frac{P \times r \times t}{100}$$

$$= \frac{5000 \times 8 \times 2}{100}$$

$$= 50 \times 16 = \text{Rs. } 800$$

$$\text{Compound interest} = P[(1 + \frac{r}{100})^t - 1]$$

$$= 5000[(1 + \frac{8}{100})^2 - 1]$$

$$= 5000[(\frac{27}{25})^2 - 1]$$

$$= 5000 \times (\frac{104}{625})$$

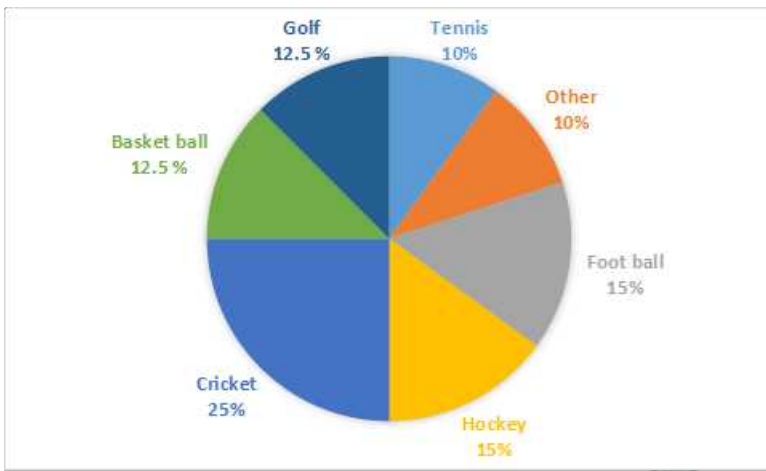
$$= \text{Rs. } 832$$

$$\therefore \text{C.I.} - \text{S.I.} = 832 - 800 = \text{Rs. } 32$$

\Rightarrow Ans - (D)

Instructions

The given pie chart have shows the spendings of a country on various sports during a year. Study the graph and answer the following questions.



Question 72

If the total amount spent on sports during the year was ₹ 15,000,000, the amount spent on cricket and hockey together was

- A 6000000
- B 5000000
- C 3750000
- D 7500000

Answer: A

Explanation:

Total amount spent = Rs. 15,000,000

% amount spent on cricket = 25%

% amount spent on hockey = 15%

$$\Rightarrow \text{Total amount spent on cricket and hockey} = \frac{(25+15)}{100} \times 15,000,000$$

$$= \frac{2}{5} \times 15,000,000 = \text{Rs. } 6,000,000$$

\Rightarrow Ans - (A)

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Question 73

If the total amount spent on sports during the year was ₹ 12,000,000 , how much was spent on basket ball ?

- A 1250000
- B 1000000
- C 1200000
- D 1500000

Answer: D

Explanation:

Total amount spent = Rs. 12,000,000

% amount spent on basket ball = 12.5%

$$\Rightarrow \text{Total amount spent on basket ball} = \frac{12.5}{100} \times 12,000,000$$

$$= \frac{12,000,000}{8} = \text{Rs. } 1,500,000$$

=> Ans - (D)

Question 74

The ratio of the total amount spent on football to that spent on hockey was

- A 1:15
- B 1:1
- C 15:1
- D 3:2

Answer: B

Explanation:

% amount spent on football = 15%

% amount spent on hockey = 15%

$$\Rightarrow \text{Required ratio} = \frac{15}{15} = 1$$

∴ The ratio of the total amount spent on football to that spent on hockey = 1 : 1

=> Ans - (B)

Question 75

What is the central angle for the tennis .

- A 36°
- B 63°
- C 33°
- D 66°

Answer: A

Explanation:

% Spending for tennis = 10%

$$\Rightarrow \text{Central angle for tennis} = \frac{10}{100} \times 360^\circ$$

$$= \frac{360^\circ}{10} = 36^\circ$$

=> Ans - (A)

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Reasoning

Instructions

For the following questions answer them individually

Question 76

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

Paw : Cat :: Hoof : ?

- A Man

- B Elephant
- C Lion
- D Horse

Answer: D

Explanation:

Paws are cat's feet while horse's foot are hoof.

=> Ans - (D)

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Question 77

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

JMPS : ADGJ :: QTWZ : ?

- A OLRU
- B HKNQ
- C LOSU
- D LPRU

Answer: B

Explanation:

Expression = JMPS : ADGJ

The pattern followed is =

| | | | |
|------|------|------|------|
| J | M | P | S |
| (-9) | (-9) | (-9) | (-9) |
| A | D | G | J |

Similarly, for QTWZ :

| | | | |
|------|------|------|------|
| Q | T | W | Z |
| (-9) | (-9) | (-9) | (-9) |
| H | K | N | Q |

=> Ans - (B)

Question 78

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

841 : 29 :: 289 : ?

- A 23
- B 21
- C 17
- D 13

Answer: C

Explanation:

Expression = 841 : 29 :: 289 : ?

The pattern followed is = $n : \sqrt{n}$

Eg = $\sqrt{841} = 29$

Similarly, $\sqrt{289} = 17$

=> Ans - (C)

Question 79

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

- A Violin
- B Piano
- C Flute
- D Harmonium

Answer: C

Explanation:

Violin, Piano and Harmonium are string and keys instruments, hence flute is the odd one out.

=> Ans - (C)

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Question 80

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

- (A) ZVR
- (B) ZYX
- (C) QMI
- (D) IEA

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

Answer: B

Explanation:

(A) : Z (-4 letters) = V (-4 letters) = R

(B) : Z (-1 letter) = Y (-1 letter) = X

(C) : Q (-4 letters) = M (-4 letters) = I

(D) : I (-4 letters) = E (-4 letters) = A

=> Ans - (B)

Question 81

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

- (A) 24
- (B) 49
- (C) 64
- (D) 81

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

Answer: A

Explanation:

$$49 = 7^2$$

$$64 = 8^2$$

$$81 = 9^2$$

Except 24, all are perfect squares.

=> Ans - (A)

Question 82

Arrange the following words as per order in the dictionary.

1. Incompatible
2. Incomparable
3. Incongruous
4. Inconsistent

- A 2,1,4,3
- B 3,4,2,1
- C 4,2,1,3
- D 2,1,3,4

Answer: D

Explanation:

As per the dictionary,

= Incomparable -> Incompatible -> Incongruous -> Inconsistent

≡ 2,1,3,4

=> Ans - (D)

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Question 83

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

dem, fgo, hiq, _____

- A jkt
- B ikp
- C jks
- D klt

Answer: C

Explanation:

The pattern followed is that the first two letters of each term are consecutive letters of English alphabetical series. In the 3rd letter of each term, one letter is omitted.

1st and 2nd letter : de , fg , hi , jk

3rd letter : m (+2 letters) = o (+2 letters) = q (+2 letters) = s

Thus, missing term = **jks**

=> Ans - (C)

Question 84

Which number will complete the series?

1,8,27,64,125,216,_____

A 354

B 343

C 392

D 245

Answer: B

Explanation:

These are cubes of natural numbers.

$$1^3 = 1$$

$$2^3 = 8$$

$$3^3 = 27$$

$$4^3 = 64$$

$$5^3 = 125$$

$$6^3 = 216$$

$$7^3 = \mathbf{343}$$

=> Ans - (B)

Question 85

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

A Cousin

B Brother

C Son

D Nephew

Answer: A

Explanation:

Mother's husband's sister is that lady's aunt.

Now, that aunt is the mother of the man.

Thus, the man and the lady are cousins.

=> Ans - (A)

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Question 86

The distance between two cities is 30 Km. A man goes at a speed of 30 Km per hour and returns at 20 Km per hour. What is his average speed

- A 25 Km/hr
- B 24 Km/hr
- C 10 Km/hr
- D 26 Km/hr

Answer: B

Explanation:

Total distance between cities = 30 km

Using, time = distance/speed

Time taken when speed is 30 kmph = $\frac{30}{30} = 1$ hour

Similarly, time taken in the return journey = $\frac{30}{20} = 1.5$ hours

∴ Average speed = total distance/total time

$$= \frac{30+30}{1+1.5} = \frac{60}{2.5}$$

$$= 24 \text{ km/hr}$$

=> Ans - (B)

Question 87

From the given alternative words, select the word which can be formed using the letters of the given word:

COMPANIONSHIP

- A OPEN
- B OPIUM
- C OPINION
- D NATION

Answer: C

Explanation:

The word COMPANIONSHIP does not contain any 'E', 'U' or 'T', and thus the first, second and the last words cannot be formed.

Only 'Opinion' can be formed.

=> Ans - (C)

Question 88

If **THOUGHT** is coded as **THGUOHT** then **THROAT** will be coded as

- A TAROHT
- B TAORTH
- C TAROHH

D TAORHT

Answer: D

Explanation:

THOUGHT is coded as THGUOHT

The pattern followed is that the word is written in reverse order, i.e. the first letter comes at the end, the 2nd letter will be at second last place and so on.

Similarly for THROAT -> TAORHT

=> Ans - (D)

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Question 89

If (–) stands for division, (+) stands for multiplication, (÷) stands for subtraction and (×) stands for addition, which one of the following equations is correct?

A $100+5-10\times250\div200 = 100$

B $200+10-20\times200\div100 = 150$

C $50\times5\div10+100-75 = 50$

D $300+5-20\times200\div100 = 200$

Answer: A

Explanation:

(–) stands for division, (+) stands for multiplication, (÷) stands for subtraction and (×) stands for addition

(A) : $100+5-10\times250\div200 = 100$

$\equiv 100 \times 5 \div 10 + 250 - 200 = 100$

L.H.S. = $50 + 50 = 100 =$ R.H.S.

=> Ans - (A)

Question 90

If, $1\times2= 1$, $2\times3= -1$ and $3\times4= -5$, Then find the value of $7\times9= ?$

A -47

B -29

C -2

D -9

Answer: A

Explanation:

The pattern followed is that the product of the numbers is subtracted from the sum of the numbers.

Eg : $(1 + 2) - (1 \times 2) = 3 - 2 = 1$

and $(2 + 3) - (2 \times 3) = 5 - 6 = -1$

and $(3 + 4) - (3 \times 4) = 7 - 12 = -5$

Similarly, $(7 + 9) - (7 \times 9) = 16 - 63 = -47$

=> Ans - (A)

Question 91

Find the missing term in the following question:

| | |
|----|----|
| ? | 8 |
| 64 | 27 |

- A 3
- B 9
- C 1
- D 7

Answer: C

Explanation:

The numbers written are cubes of natural numbers.

$$1^3 = 1$$

$$2^3 = 8$$

$$3^3 = 27$$

$$4^3 = 64$$

=> Ans - (C)

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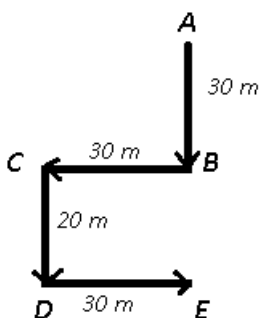
Question 92

A girl walks 30m towards south, then turning to her right she walks 30m, then turning to her left, she walks 20m, again she turns to her left and walks 30m. How far is she from her initial position?

- A 20 mtr
- B 30 mtr
- C 50 mtr
- D 60 mtr

Answer: C

Explanation:



Let the girl starts from point A and walks south for 30 m till she reaches B, then she turns right and walks towards west for 30 m and

reach point C. Then, she turns left and travel south for 20 m and before finally stopping at point E.

Thus, $AE = 30 + 20 = 50$ m

∴ The girl is 50 m to the south of her initial position.

=> Ans - (C)

Question 93

Consider the given statement/s to be true and decide which of the given conclusions/assumptions can definitely be drawn from the given statement.

Statement: No man is a donkey. Ajay is a man.

Conclusion:

I: Ajay is not a donkey.

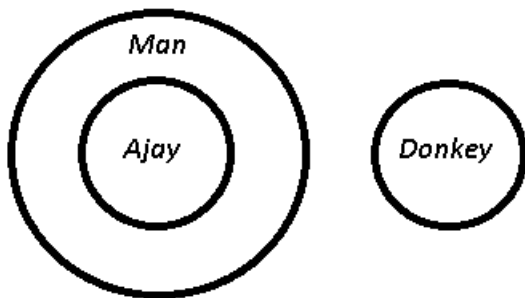
II: All man are not Ajay.

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

Answer: A

Explanation:

The venn diagram of the above statements is :



I: Ajay is not a donkey = true

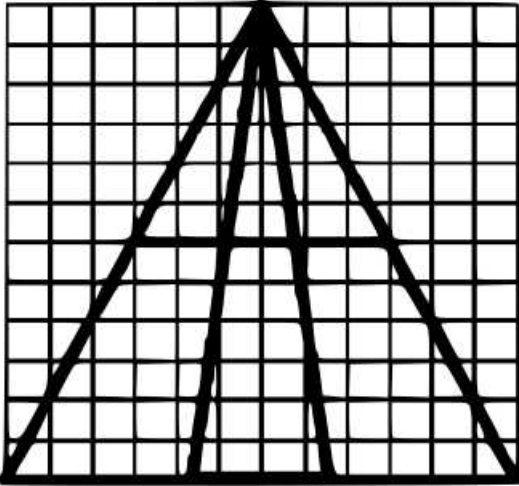
II: All man are not Ajay = may or may not be true (when Ajay and man coincides)

Thus, only conclusion I follows

=> Ans - (A)

Question 94

Find the number of triangles in the figure.



- A 12
- B 14
- C 16
- D 18

Answer: A

Explanation:

Smaller triangles = 3

Triangles formed with combination of 1 triangle and 1 quadrilateral = 3

Triangles formed with combination of 2 triangles and 2 quadrilaterals = 2

Triangles formed with 2 triangles = 2

Triangles formed with 3 triangles = 1

Larger triangles = 1

Thus, total triangles = $3 + 3 + 2 + 2 + 1 + 1 = 12$

=> Ans - (A)

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Question 95

14 notebooks of a class were corrected with ink pen while 22 notebooks were corrected with colour pencil. If 4 notebooks were corrected with both, what is the strength of class?

- A 30
- B 32
- C 28
- D 25

Answer: B

Explanation:

Notebooks corrected with ink pen = 14

Notebooks corrected with colour pencil = 22

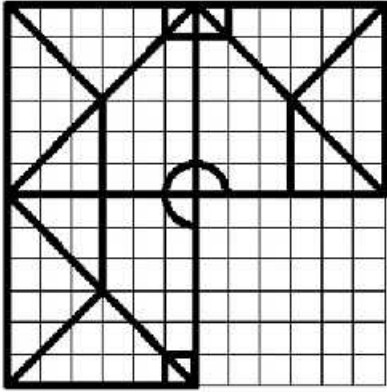
Notebooks corrected with both = 4

Thus, strength of class = $(22 + 14) - 4 = 36 - 4 = 32$

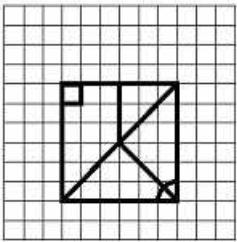
=> Ans - (B)

Question 96

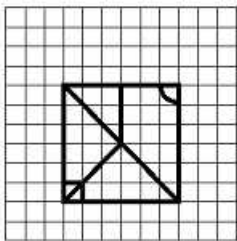
Which answer figure will complete the pattern in the question figure?



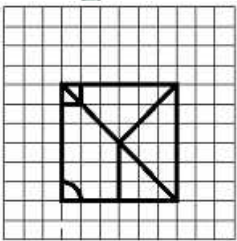
A



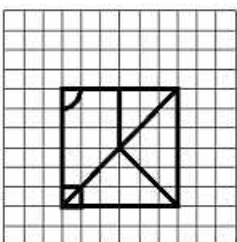
B



C



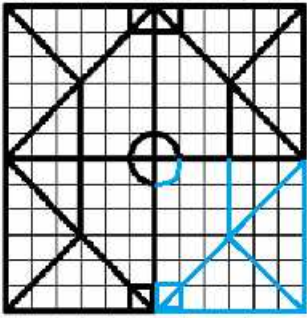
D



Answer: D

Explanation:

When we complete the above figure, we get :

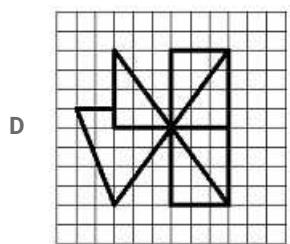
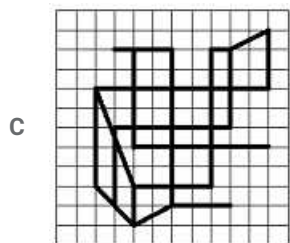
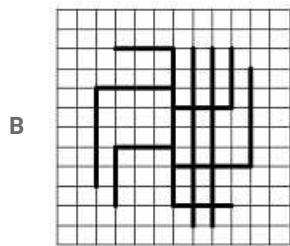
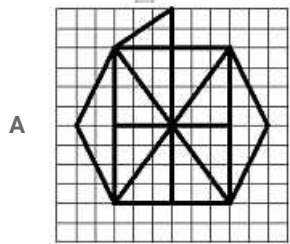
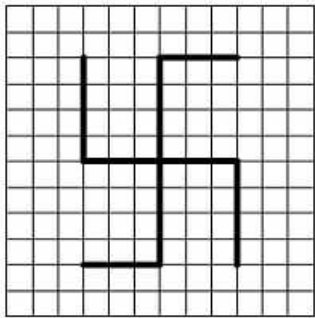


Now, the last figure resembles the above missing part in blue colour.

=> Ans - (D)

Question 97

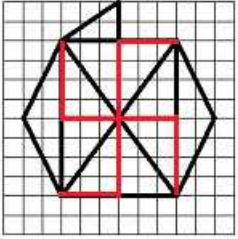
From the given answer figures, select the one in which the question figure is hidden/embedded.



Answer: A

Explanation:

The question figure is embedded in the following figure :

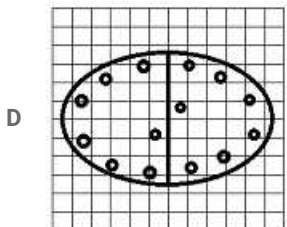
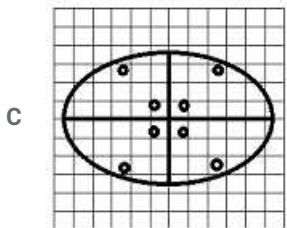
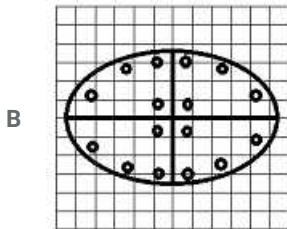
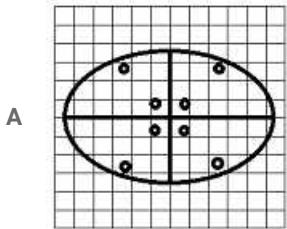
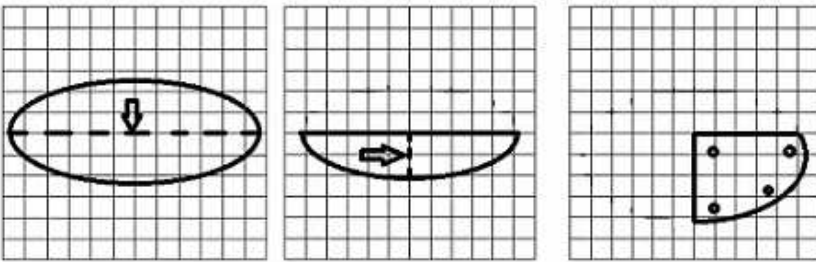


=> Ans - (A)

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Question 98

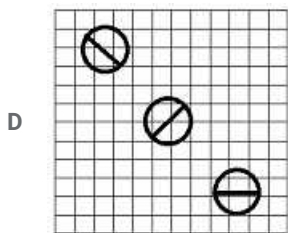
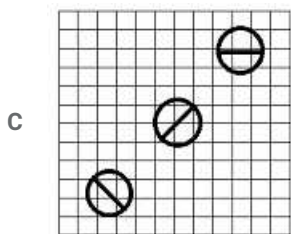
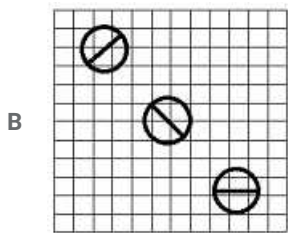
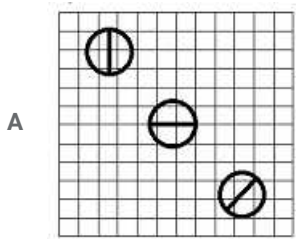
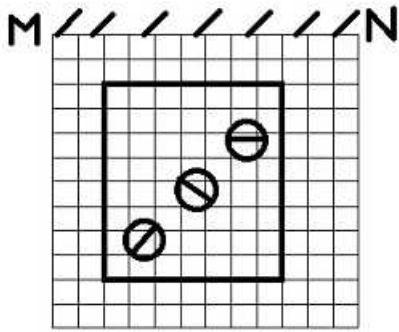
A piece of paper is folded and cut as shown below in the question figures. From the given answer figures, indicate how it will appear when opened.



Answer: B

Question 99

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



Answer: D

Explanation:

A horizontal mirror is placed, so the objects will turn upside down in the mirror image (e.g - an object at top right will appear at bottom right). Now, the three circles form a right diagonal in the question figure, hence they will appear as left diagonal in the mirror image, thus the third option is eliminated.

Also, the circle at the top right has horizontal diameter, now in the mirror it will appear at bottom right position as shown in last figure.

=> Ans - (D)

Question 100

In the question, 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., A can be represented by 14, 21, 33 etc., and P can be represented by 56, 75, 87 etc. You have to identify the set for the word 'ARTS'.

Matrix - I

| | | | | | |
|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 |
| 0 | B | H | A | R | T |
| 1 | R | T | B | H | A |
| 2 | H | A | R | T | B |
| 3 | T | B | H | A | R |
| 4 | A | R | T | B | H |

Matrix - II

| | | | | | |
|---|---|---|---|---|---|
| | 5 | 6 | 7 | 8 | 9 |
| 5 | S | P | E | A | K |
| 6 | A | K | S | P | E |
| 7 | P | E | A | K | S |
| 8 | K | S | P | E | A |
| 9 | E | A | K | S | P |

- A 02, 12, 22, 67
- B 40, 41, 42, 78
- C 95, 34, 23, 86
- D 65, 22, 23, 67

Answer: D

Explanation:

- (A) : 02, 12, 22, 67 = ABRS
- (B) : 40, 41, 42, 78 = ARTK
- (C) : 95, 34, 23, 86 = ERTS
- (D) : 65, 22, 23, 67 = **ARTS**

=> Ans - (D)

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