



SSC CGL 7th March 2020 Shift-3

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General Intelligence and Reasoning

Instructions

For the following questions answer them individually

Question 1

'Bangladesh' is related to 'Dhaka' in the same way as 'Pakistan' is related to '

- A Karachi
- B Islamabad
- C Multan
- D Lahore

Answer: B

Explanation:

Dhaka is the capital of Bangladesh similarly, Islamabad is the capital of Pakistan.

∴ The correct answer is option B.

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Question 2

Select the option that is related to the third number in the same way as the second number is related to the first number.

3 : 20 :: 7 : ?

- A 105
- B 96
- C 100
- D 98

Answer: C

Explanation:

In 3 : 20,

$$(3)^2 \times 2 + 2 = 18 + 2 = 20$$

Similarly,

$$(7)^2 \times 2 + 2 = 98 + 2 = 100$$

∴ The correct answer is option C.

Question 3

Four number-pairs have been given, out of which three are alike in some manner and one is different. Select the number-pair that is different from the rest.

- A 19-114
- B 17-102
- C 12-72
- D 28-164

Answer: D

Explanation:

$$19 \times 6 = 114$$

$$17 \times 6 = 102$$

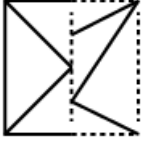
$$12 \times 6 = 72$$

$$28 \times 6 = 168$$

∴ The correct answer is option D.

Question 4

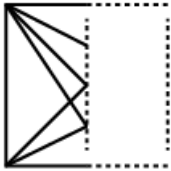
Select the option that depicts how the given transparent sheet of paper would appear if it is folded at the dotted line



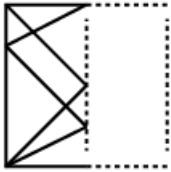
A



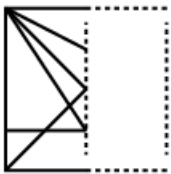
B



C



D



Answer: B

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Question 5

Hemant buys a dozen eggs for ₹ 5.50 per egg. While carrying them, two eggs get wasted when they fall down and get damaged. He sells the balance eggs at ₹ 7.70 per egg. Find the net profit earned by him in the overall deal.

A ₹11.00

B ₹15.00

C ₹10.70

D ₹15.40

Answer: A

Explanation:

Cost price of the dozen eggs = $5.50 \times 12 = 66$

Number of eggs Hemant sells = $12 - 2 = 10$

(\because 2 eggs get damaged)

Selling price of 10 eggs = $7.70 \times 10 = 77$

Profit = $77 - 66 = ₹ 11$

\therefore The correct answer is option A.

Question 6

In a certain code language, 'FIGURE' is written as 'DJEVPF'. How will 'DECODE' be written as in that language ?

A BFDNBF

B BDANBD

C BDDNBD

D BFAPBF

Answer: D

Explanation:

'FIGURE' is written as 'DJEVPE',

F - 2 = D

I + 1 = J

G - 2 = E

U + 1 = V

R - 2 = P

E + 1 = F

Similarly,

D - 2 = B

E + 1 = F

C - 2 = A

O + 1 = P

D - 2 = B

E + 1 = F

'DECODE' is written as 'BFAPBF'.

\therefore The correct answer is option D.

Question 7

Study the given pattern carefully and select the number that can replace the question mark (?) in it.

7	3	11
4	9	23
11	7	?

A 71

B 77

C 63

D 59

Answer: D

Explanation:

$$(7 \times 3) - (7 + 3) = 21 - 10 = 11$$

$$(4 \times 9) - (4 + 9) = 36 - 13 = 23$$

Similarly,

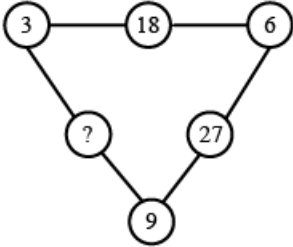
$$(11 \times 7) - (11 + 7) = 77 - 18 = 59$$

∴ The correct answer is option D.

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Question 8

Study the given pattern carefully and select the number that can replace the question mark (?) in it.



A 38

B 18

C 29

D 54

Answer: D

Question 9

In a certain code language, 'LAMP' is coded as '2422632'. How will 'FORK' be coded as in that language?

A 12302624

B 12303622

C 12303424

D 12303422

Answer: B

Explanation:

'LAMP' is coded as '2422632',

$$L \rightarrow 12 \times 2 = 24$$

$$A \rightarrow 1 \times 2 = 2$$

$$M \rightarrow 13 \times 2 = 26$$

$$P \rightarrow 16 \times 2 = 32$$

Similarly,

$$F \rightarrow 6 \times 2 = 12$$

$$O \rightarrow 15 \times 2 = 30$$

$$R \rightarrow 18 \times 2 = 36$$

$$K \rightarrow 11 \times 2 = 22$$

'FORK' is coded as '12303622'.

∴ The correct answer is option B.

Question 10

Select the number that can replace the question mark (?) in the following series.

1, 5, 9, ?, 21

- A 20
- B 11
- C 19
- D 15

Answer: D

Explanation:

The numbers represent the position in the alphabet of the letters a, e, i, and o which are the first four vowels. The next number in the sequence is therefore 21 which represents the letter u.

∴ The correct answer is option D.

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Question 11

Which two signs should be interchanged to make the given equation correct?

$$121 \div 11 + 54 - 9 \times 3 = 128$$

- A + and -
- B + and ×
- C ÷ and -
- D × and ÷

Answer: C

Explanation:

$$121 \div 11 + 54 - 9 \times 3 = 128$$

From option C,

After the interchanging sign,

$$121 - 11 + 54 \div 9 \times 3 = 128$$

$$121 - 11 + 6 \times 3 = 128$$

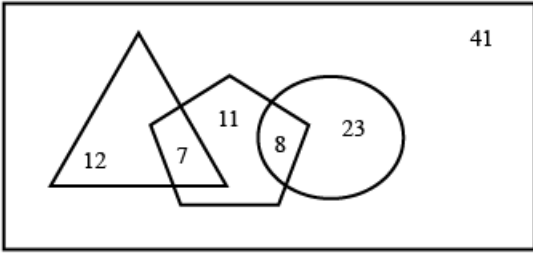
$$121 - 11 + 18 = 128$$

$$128 = 128$$

∴ The correct answer is option C.

Question 12

In the given Venn diagram, the 'rectangle' represents 'ladies of a club', the 'triangle' represents 'like to dance', the 'circle' represents 'like to sing' and the 'pentagon' represents 'like to mimic'. The numbers given in the diagram represent the number of persons in that particular category.



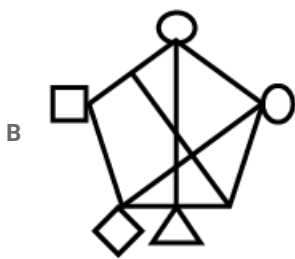
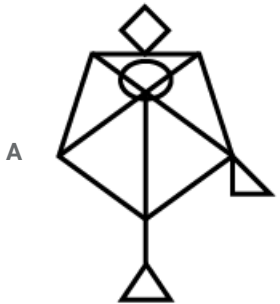
How many ladies of the club NEITHER like to dance NOR like to mimic?

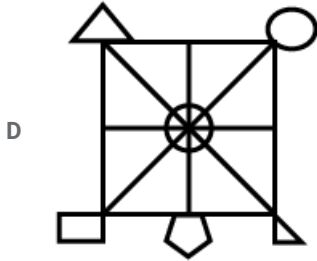
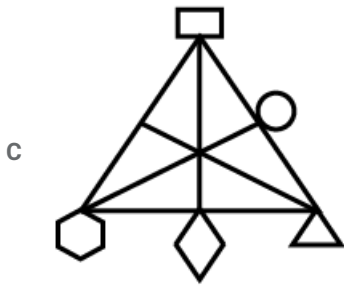
- A 23
- B 72
- C 26
- D 64

Answer: D

Question 13

Select the option in which the given figure is NOT embedded (rotation is not allowed).





Answer: D

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Question 14

$A + B$ means 'B is the daughter of A';

$A - B$ means 'B is the sister of A';

$A \times B$ means 'B is the husband of A';

$A \div B$ means 'A is the father of B'.

If, $P \div R \times T + Q - S \times U + Z$, then how is R related to Z?

- A Maternal grandfather
- B Maternal grandmother
- C Paternal grandfather
- D Paternal grandmother

Answer: B

Question 15

Four letter-clusters have been given, out of which three are alike in some manner and one is different. Select the odd letter-cluster.

- A GHJMP
- B ABDGK
- C BCEHL
- D NOQTX

Answer: A

Explanation:

$G + 1 \rightarrow H + 2 \rightarrow J + 2 \rightarrow M + 2 \rightarrow P$

$A + 1 \rightarrow B + 2 \rightarrow D + 3 \rightarrow G + 4 \rightarrow K$

$B + 1 \rightarrow C + 2 \rightarrow E + 3 \rightarrow H + 4 \rightarrow L$

$N + 1 \rightarrow O + 2 \rightarrow Q + 3 \rightarrow T + 4 \rightarrow X$

Option A has the unique operation so 'GHJMP' is odd.

∴ The correct answer is option A.

Question 16

Select the letter that can replace the question mark (?) in the following series.

A, D, ?, B, R, Y

A I

B H

C J

D G

Answer: A

Explanation:

The series has two series,

A, ?, R

And D, B, Y

$A + 8 = I$

$I + 9 = R$

∴ The correct answer is option A.

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Question 17

Select the correct mirror image of the given figure when a mirror is placed on the right of the figure.



A



B



C



D



Answer: A

Question 18

Arrange the following words in a logical and meaningful order.

1. Acre
2. Square Yard
3. Square Inch
4. Hectare
5. Square Feet

- A 3-5-1-2-4
 B 3-5-2-4-1
 C 3-5-1-4-2
 D 3-5-2-1-4

Answer: D

Explanation:

Meaningful order of the words,
 Square Inch, Square Feet, Square Yard, Acre, Hectare
 ∴ The correct answer is option D.

Question 19

Select the figure that can replace the question mark (?) in the following series.



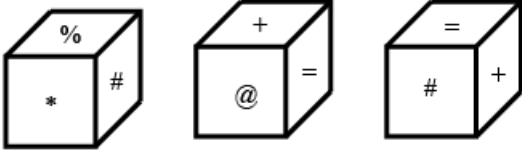
- A
- B
- C
- D

Answer: B

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Question 20

Three different positions of the same dice are shown. Select the symbol that will be on the face opposite to the one showing '%'.



A +

B @

C *

D =

Answer: A

Question 21

Four words have been given, out of which three are alike in some manner and one is different. Select the odd word.

A Spinach

B Carrot

C Potato

D Radish

Answer: A

Explanation:

Except 'spinach' remaining all are root vegetables so, option A is odd.

∴ The correct answer is option A.

Question 22

Select the option in which the words share the same relationship as that shared by the given pair of words.

Horses : Neigh

A Bears : Roar

B Donkeys : Chortle

C Camels : Grunt

D Elephants : Whine

Answer: C

Explanation:

As noise of horse is called neigh similarly, Noise of camel is called grunt.

∴ The correct answer is option C.

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Question 23

Select the letter-cluster that can replace the question mark (?) in the following series.
ABDE, FGJH, ?, PQST, UVXY

- A KLMO
- B KLNO
- C KLMN
- D KLNP

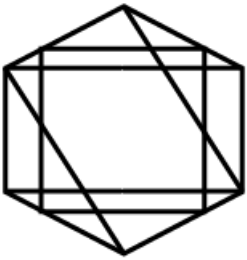
Answer: B

Explanation:

In the series, first two letters and last two letters have the difference 1 in each letter-cluster so,
Next letter-cluster = KLNO
∴ The correct answer is option B.

Question 24

How many triangles are there in the given figure?



- A 29
- B 31
- C 21
- D 19

Answer: A

Question 25

Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

1. All laptops are computers.
2. Some tablets are laptops.

Conclusions:

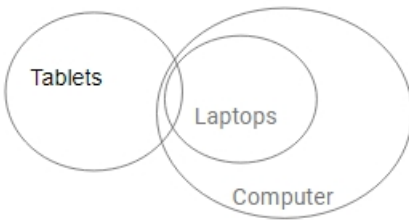
- I. All tablets are computers.
- II. Some tablets are computers.
- III. Some computers are laptops.

- A All conclusions I, II and III follow.
- B Only conclusions II and III follow.
- C Only conclusion II follows.

D Only conclusion III follows.

Answer: B

Explanation:



From the Venn diagram,
Only conclusion II and III follow.
∴ The correct answer is option B.

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General Awareness

Instructions

For the following questions answer them individually

Question 26

Who among the following scholars is associated with the Tibet-home theory of the Aryans?

- A Dayanand Saraswat
- B Bal Gangadhar Tilak
- C MacDonell
- D Max Muller

Answer: A

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Question 27

The Mission of the Ramsar Convention is to conserve

- A wetlands
- B rivers
- C oceans
- D deserts

Answer: A

Question 28

Which of the following states does NOT share its boundary with Madhya Pradesh?

- A Odisha
- B Uttar Pradesh

- C Gujarat
- D Rajasthan

Answer: A

Question 29

What is the velocity of sound in air?

- A 343 m/sec
- B 110 m/sec
- C 220 m/sec
- D 232 m/sec

Answer: A

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Question 30

In the context of UN Sustainable Development Goals, which of the following pairs is **INCORRECT**?

- A Zero Hunger - SDG 2
- B Quality Education - SDG 3
- C No Poverty - SDG 1
- D Decent Work and Economic Growth - SDG 8

Answer: B

Question 31

With reference to dances and their native states, which of the following pairs is correct?

- A Yakshagana - Karnataka
- B Sattariya - Manipur
- C Kalaripayattu - Karnataka
- D Gomira - Uttar Pradesh

Answer: A

Question 32

Name the densest stable element known on earth.

- A Osmium
- B Rhodium
- C Aluminium
- D Tungsten

Answer: A

Question 33

What does 'A' stand for in 'UDAN', the initiative of the Civil Aviation Ministry?

- A Aam
- B Aastha
- C Aviation
- D Air

Answer: A

Question 34

Which team won the Federation Cup Football Tournament for the most number of times?

- A Mohun Bagan AC
- B Salgaocar SC
- C East Bengal FC
- D Bengaluru FC

Answer: A

Question 35

How many carbon and hydrogen atoms are there in Propane, respectively?

- A 2, 4
- B 2, 6
- C 4, 7
- D 3, 8

Answer: D

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Question 36

Who appoints the Advocate General of states?

- A President of India
- B Chief Minister of the state
- C Chief Justice of the high court
- D Governor of the state

Answer: D

Question 37

In which state The Jaugada Rock Edict of Asoka is located?

- A Uttarakhand
- B Odisha
- C Gujarat
- D Andhra Pradesh

Answer: B

Question 38

The Swaraj Party was founded by:

- A Bhimrao Ambedkar and Sardar Vallabhbhai Patel
- B Motilal Nehru and Chittaranjan Das
- C Sukhdev and Rajguru
- D Aruna Asaf Ali and Subhash Chandra Bose

Answer: B

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Question 39

What is the bond angle (in degrees) in the structure of a benzene molecule?

- A 60
- B 150
- C 90
- D 120

Answer: D

Question 40

Which of the following is the outermost solid part of the Earth?

- A Crust
- B Core
- C Mantle
- D Caldera

Answer: A

Question 41

On which date is National Sports Day observed in India?

- A 17th September
- B 4th May
- C 29th August
- D 5th July

Answer: C

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Question 42

Which company recently became the 1st Indian company to hit the 10 lakh Crore Market valuations

- A Reliance
- B BSNL
- C Jio
- D Airtel

Answer: A

Question 43

In 2018, who among the following came to the limelight by building a people's road through crowd funding that helped in connecting remote villages of Manipur?

- A Irom Sharmila
- B Mary Kom
- C Dingo Singh
- D Armstrong Pame

Answer: D

Question 44

As of January 2020, the Make in India program was implemented by the _____.

- A Ministry of Heavy Industries and Public Enterprises
- B Ministry of Commerce and Industry
- C Ministry of Shipping
- D Ministry of Science and Technology

Answer: B

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Question 45

According to the Jain Philosophy, the term 'Jina' means _____

- A lord
- B free from fetters
- C worthy
- D the conqueror

Answer: D

Question 46

Which among the following heritage buildings does NOT figure among those which were dedicated to the nation by the PM Narendra Modi in during his two-day visit to West Bengal in January 2020?

- A Metcalfe House
- B Old Currency Building
- C Victoria Memorial Hall
- D Belur Math Temple

Answer: D

Question 47

Which of the following animals does NOT find a place in the National Emblem of India?

- A Lion
- B Bull
- C Camel
- D Horse

Answer: C

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Question 48

'Torr' is a unit of _____.

- A force
- B energy
- C power
- D pressure

Answer: D

Question 49

The 'Great Indian Novel' is authored by:

- A Arvind Adiga

- B Chitra Banerjee
- C Vikram Seth
- D Shashi Tharoor

Answer: D

Question 50

As of January 2020, who among the following is the Lt. Governor of Jammu and Kashmir?

- A Jagdish Mukhi
- B Lalji Tandon
- C Girish Chandra Murmu
- D Satyapal Malik

Answer: C

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Quantitative Aptitude

Instructions

For the following questions answer them individually

Question 51

In a stream running at 3 km/h, a motorboat goes 12 km upstream and back to the starting point in 60 min. Find the speed of the motor boat in still water. (in km/h)

- A $2(2 + \sqrt{17})$
- B $3(2 + \sqrt{17})$
- C $2(4 + \sqrt{15})$
- D $3(4 + \sqrt{17})$

Answer: D

Explanation:

Speed of stream = 3 km/hr

Let the speed of motor boat be v .

Relative speed in upstream = $v - 3$ km/hr

Relative speed in downstream = $v + 3$ km/hr

Distance = 12 km

Time = 60 min = 1 hr

Time = Distance/speed

$$\frac{12}{v-3} + \frac{12}{v+3} = 1$$

$$12(v+3) + 12(v-3) = (v+3)(v-3)$$

$$24v = v^2 - 3^2$$

$$v^2 - 24v - 9 = 0$$

From Dharacharya Formula,

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{24 \pm \sqrt{24^2 - 4(1)(-9)}}{2}$$

$$x = \frac{24 \pm \sqrt{576 + 36}}{2}$$

$$x = 12 \pm \sqrt{153}$$

$$x = 12 \pm \sqrt{17 \times 9}$$

$$x = 3(4 \pm \sqrt{17})$$

According to option,

$$x = 3(4 + \sqrt{17})$$

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Question 52

Find the product of $(a + b + 2c)(a^2 + b^2 + 4c^2 - ab - 2bc - 2ca)$

A $a^3 + b^3 + 8c^3 - 2abc$

B $a^3 + b^3 + 8c^3 - abc$

C $a^3 + b^3 + 6c^3 - 6abc$

D $a^3 + b^3 + 8c^3 - 6abc$

Answer: D

Explanation:

$$(a + b + 2c)(a^2 + b^2 + 4c^2 - ab - 2bc - 2ca)$$

$$= a^3 + b^3 + (2c)^3 - 3 \times a \times b \times 2c$$

$$(\because a^3 + b^3 + c^3 - 3abc = (a + b + c)(a^2 + b^2 + c^2 - ab - bc - ca))$$

$$= a^3 + b^3 + 8c^3 - 6abc$$

Question 53

What is the remainder when we divide $5^{70} - 7^{70}$ by 24 ?

A 5

B 0

C 7

D 1

Answer: B

Explanation:

When $5^{70} + 7^{70}$ is divide by 24,

$$\frac{5^{70} + 7^{70}}{24}$$

$$= \frac{(5^2)^{35} + (7^2)^{35}}{24} = \frac{25^{35} + 49^{35}}{24}$$

$$= \frac{25^{35}}{24} + \frac{49^{35}}{24}$$

$$\text{Remainder} = (1)^{35} - (1)^{35} = 1 - 1 = 0$$

Question 54

What is the area of a triangle whose sides are 3 cm, 5 cm and 4 cm?

- A 3 cm^2
- B $2\sqrt{6} \text{ cm}^2$
- C 6 cm^2
- D $2\sqrt{3} \text{ cm}^2$

Answer: C

Explanation:

By triplet 3-4-5, the triangle will be right angle triangle so, 5 will be hypotenuse.

$$\text{Area of triangle} = \frac{1}{2} \times \text{base} \times \text{height} = \frac{1}{2} \times 3 \times 4 = 6 \text{ cm}^2$$

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Question 55

A man sold two gifts at ₹30 each. On one gift he gained 18%, and on the other gift he lost 18%. What is his over all gain/loss (in ₹)?

- A Gain of ₹1.75
- B Loss of ₹2.00
- C Loss of ₹2.50
- D Gain of ₹2.00

Answer: B

Explanation:

Let the two items be X and Y respectively

X be sold at 18% gain

Y be sold at 18% loss

$$\text{Cost price of } x = \frac{30}{118} \times 100 = \text{Rs } 25.42$$

$$\text{Cost price of } y = \frac{30}{82} \times 100 = \text{Rs } 36.58$$

$$\text{Gain on sale of } x = 30 - 25.42 = 4.58$$

$$\text{Loss on sale of } y = 36.58 - 30 = 6.58$$

$$\text{Net loss} = \text{Rs } 6.58 - \text{Rs } 4.58 = \text{Rs } 2$$

Question 56

By what number must the given number be multiplied to increase the number by 25%

- A $\frac{3}{4}$
- B $\frac{5}{4}$
- C $\frac{2}{5}$

D 3

Answer: B

Explanation:

Number to increase 25% = 125% = 125/100 = 5/4

Question 57

In $\triangle ABC$, D is a point on BC such that AD is the bisector of $\angle A$, $AB = 11.7$ cm, $AC = 7.8$ cm and $BC = 13$ cm. What is the length (in cm) of DC?

A 5.2

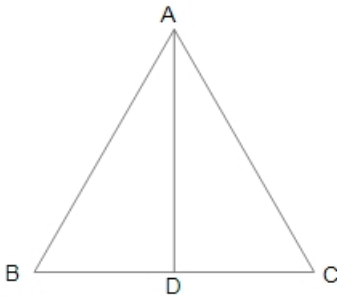
B 13

C 15

D 10.4

Answer: A

Explanation:



By the angle bisector theorem,

$$\frac{DC}{AC} = \frac{BD}{AB}$$

$$\frac{DC}{7.8} = \frac{13 - DC}{11.7}$$

$$11.7 \times DC = 7.8(13 - DC)$$

$$DC = 101.4/19.5 = 5.2 \text{ cm}$$

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Question 58

The length of each equal side of an isosceles triangle is 15 cm and the included angle between those two sides is 90° . Find the area of the triangle.

A 225 cm^2

B $\frac{255}{2} \text{ cm}^2$

C $\frac{125}{2} \text{ cm}^2$

D $\frac{225}{2} \text{ cm}^2$

Answer: D

Explanation:

$$\text{Area of a triangle} = \frac{1}{2} \times a \times b \times \sin\theta$$

$$a = b = 15 \text{ cm}$$

$$\theta = 90^\circ$$

$$\text{Area of a triangle} = \frac{1}{2} \times 15 \times 15 \times \sin 90^\circ = \frac{225}{2} \text{ cm}^2$$

Question 59

A trader marks his goods at 60% above the cost price and allows a discount of 25%. What is his gain percent?

- A 20%
- B 25%
- C 30%
- D 40%

Answer: A

Explanation:

Let the cost price of An article be Rs. 100.

Marked price = 160% of 100 = Rs. 160

Discount = 25%

Selling price = $160 \times \frac{75}{100}$ = Rs. 120

Gain = $\frac{120 - 100}{100} \times 100 = 20\%$

Question 60

The following table shows the percentage distribution of the population of five states, A, B, C, D and E on the basis of the poverty line and also on the basis of sex.

State	Percentage of population below the poverty line	Proportion of Males and Females	
		Below poverty line	Above poverty line
		Males:Females	Males:Females
A	15	5:03	4:03
B	25	1:02	2:03
C	19	3:02	4:05
D	35	1:02	2:03
E	24	3:05	6:07

If the male population above the poverty line for State B is 2.5 million, then what is the total population of State B?

- A $8\frac{2}{3}$
- B $7\frac{2}{3}$
- C $8\frac{1}{2}$
- D $10\frac{5}{3}$

Answer: C

Explanation:

Male population above the poverty line for State B = 2.5 million

Ratio of male to female population above the poverty line for State B = 2 : 03

Female population above the poverty line for State B = $\frac{2.5}{2} \times 3 = 3.75$ million

Total population above the poverty line for State B = 2.5 + 3.75 = 6.25 million

Percentage population above the poverty line = $100 - 25 = 75\%$

$75\% = 6.25$ million

Total population = $\frac{6.25}{75} \times 100 = 8.33 = 8\frac{1}{3}$ million

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Question 61

If $\cot \theta + \tan \theta = 2 \sec \theta$, $0^\circ < \theta < 90^\circ$, then the value of $\frac{\tan 2\theta - \sec \theta}{\cot 2\theta + \operatorname{cosec} \theta}$

A $\frac{2\sqrt{3}-1}{5}$

B $\frac{3-\sqrt{2}}{5}$

C $\frac{2\sqrt{3}-1}{11}$

D $\frac{3-\sqrt{2}}{11}$

Answer: C

Explanation:

$$\cot \theta + \tan \theta = 2 \sec \theta$$

On putting the value of $\theta = 30^\circ$

$$\cot 30^\circ + \tan 30^\circ = 2 \sec 30^\circ$$

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

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

$$\frac{\tan 2\theta - \sec \theta}{\cot 2\theta + \operatorname{cosec} \theta}$$

$$= \frac{\tan 2 \times 30^\circ - \sec 30^\circ}{\cot 2 \times 30^\circ + \operatorname{cosec} 30^\circ}$$

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

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

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

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

$$= \frac{2\sqrt{3}-1}{11}$$

Question 62

The total number of students in a class is 65. If the total number of girls in the class is 35, then the ratio of the total number of boys to the total number of girls is:

A 6:7

B 7:6

C 13:7

D 7:13

Answer: A

Explanation:

The ratio of the total number of boys to the total number of girls = 65 : 35 = 13 : 7

Question 63

The following table shows the percentage distribution of the population of five states, A, B, C, D and E on the basis of the poverty line and also on the basis of sex.

State	Percentage of population below the poverty line	Proportion of Males and Females	
		Below poverty line	Above poverty line
		Males:Females	Males:Females
A	15	5:03	4:03
B	25	1:02	2:03
C	19	3:02	4:05
D	35	1:02	2:03
E	24	3:05	6:07

If the population of males below the poverty line for State C is 3 million, then what is the total population of State C?

- A 23.361 million
- B 25.617 million
- C 26.316 million
- D 24.486 million

Answer: C

Explanation:

Population of males below the poverty line for State C = 3 million

Ratio of the male to female population = 3 : 02

Population of males below the poverty line for State C = $\frac{3}{3} \times 2 = 2$ million

Percentage population below the the poverty line = 19%

$3 + 2 = 19\%$

$19\% = 5$ million

Total population(100%) = $\frac{5}{19} \times 100 = 26.31\%$

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Question 64

The following table shows the items of expenditure of a company(in ₹ lakh per annum), from 2015 to 2019.

Year	Salary	Fuel and transport	Bonus	Interest on loans	taxes
2019	250	90	5	23.5	80
2018	350	110	2.5	30	110
2017	325	100	3.5	40	70
2016	300	125	4	35	90
2015	400	140	3	45	100

What is the average amount of interest per year which the company had to pay during this period?

- A ₹ 30.7 lakh
- B ₹ 35 lakh

C ₹ 25 lakh

D ₹ 34.7 lakh

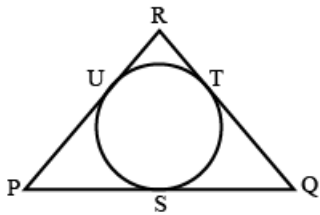
Answer: D

Explanation:

Average amount of interest per year which the company had to pay during this period = $\frac{23.5 + 30 + 40 + 35 + 45}{5}$
 $= 173.5/5 = 34.7$ lakh

Question 65

In the given figure, a circle inscribed in $\triangle PQR$ touches its sides PQ, QR and RP at points S, T and U, respectively. If PQ = 15 cm, QR = 10 cm, and RP = 12 cm, then find the lengths of PS, QT and RU?



A PS = 8.5 cm, QT = 3.5 cm and RU = 6.5 cm

B PS = 8.5 cm, QT = 6.5 cm and RU = 3.5 cm

C PS = 6.5 cm, QT = 8.5 cm and RU = 3.5 cm

D PS = 3.5 cm, QT = 6.5 cm and RU = 8.5 cm

Answer: B

Question 66

When two equal amounts are deposited for 5 years and 3 years at the rate of 7% and 9% per annum respectively, and the difference of their simple interest is Rs 475. Then find the deposited amount.

A ₹ 5,937.5

B ₹ 5,992.5

C ₹ 5,837.5

D ₹ 6,037.5

Answer: A

Explanation:

Simple interest = $\frac{prt}{100}$

Difference of the interest = 475

$\frac{p \times 7 \times 5}{100} - \frac{p \times 9 \times 3}{100} = 475$

$35p - 27p = 47500$

$p = 47500/8 = \text{Rs. } 5937.5$

\therefore Deposit amount will be Rs. 5937.5.

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Question 67

$25a^2 - 9$ is factored as

- A $(5a + 3)(5a - 3)$
- B $(5a + 1)(5a - 9)$
- C $(5a - 3)^2$
- D $(25a + 1)(a - 9)$

Answer: A

Explanation:

$$\begin{aligned}
 &25a^2 - 9 \\
 &= (5a)^2 - (3)^2 \\
 &= (\because a^2 - b^2 = (a + b)(a - b)) \\
 &= (5a + 3)(5a - 3)
 \end{aligned}$$

Question 68

Solve the following.

$$\left(\frac{\sin 27^\circ}{\cos 63^\circ}\right) - \left(\frac{\cos 27^\circ}{\sin 63^\circ}\right)^2$$

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

Answer: B

Explanation:

$$\begin{aligned}
 &\left(\frac{\sin 27^\circ}{\cos 63^\circ}\right) - \left(\frac{\cos 27^\circ}{\sin 63^\circ}\right)^2 \\
 &\left(\frac{\sin(90^\circ - 63^\circ)}{\cos 63^\circ}\right) - \left(\frac{\cos(90^\circ - 63^\circ)}{\sin 63^\circ}\right)^2 \\
 &= \left(\frac{\cos 63^\circ}{\cos 63^\circ}\right) - \left(\frac{\sin 63^\circ}{\sin 63^\circ}\right)^2 \\
 &= 1 - 1 = 0
 \end{aligned}$$

Question 69

Solve the following expression.

$$5.6 - \{2 + 0.6 \text{ of } (2.1 - 2.6 \times 1.12)\}$$

- A 7.7112
- B 7.7113
- C 4.0871
- D 4.0872

Answer: D

Explanation:

$$\begin{aligned}
 &5.6 - \{2 + 0.6 \text{ of } (2.1 - 2.6 \times 1.12)\} \\
 &= 5.6 - \{2 + 0.6 \text{ of } (2.1 - 2.912)\}
 \end{aligned}$$

$$= 5.6 - \{2 + 0.6 \times (-0.812)\}$$

$$= 5.6 - \{2 - 0.4872\}$$

$$= 5.6 - 1.5128 = 4.0872$$

General Science Notes for SSC CGL

Question 70

The average score in Mathematics of 90 students of sections A and B together is 49. The number of students in A was 25% more than that of B, and the average score of the students in B was 20% higher than that of the students in A. What is the average score of the students in A?

A 44.5

B 45

C 44

D 45.5

Answer: B

Explanation:

Let the number of students in section B be x .

The number of students in A was 25% more than that of B. So,

$$\text{The number of students in A} = x \times \frac{125}{100} = 1.25x$$

Total student = 90

$$x + 1.25x = 90$$

$$x = 40$$

The number of students in B = 40

The number of students in A = $90 - 40 = 50$

Let the average score of the section A be p .

Total score of the section A = number of students \times average = $50p$

Average score of the section B = 120% of $p = 1.2p$

Total score of the section B = $40 \times 1.2p = 48p$

Total score of 90 students = $49 \times 90 = 4410$

Total score of the section A + Total score of the section B = 4410

$$50p + 48p = 4410$$

$$p = 4410/98 = 45$$

\therefore Average score of the section A is 45.

Question 71

Find the area and circumference of a circle if the radius is 14 cm. (Take $\pi = \frac{22}{7}$)

A Area = 44 cm^2 ; circumference = 308 cm

B Area = 616 cm^2 ; circumference = 88 cm

C Area = 88 cm^2 ; circumference = 616 cm

D Area = 308 cm^2 ; circumference = 44 cm

Answer: B

Explanation:

$$\text{Area of circle} = \pi r^2 = \frac{22}{7} \times 14 \times 14 = 616 \text{ cm}^2$$

$$\text{Circumference of a circle} = 2\pi r = 2 \times \frac{22}{7} \times 14 = 88 \text{ cm}$$

Question 72

If $5 \cos^2 \theta + 1 = 3 \sin^2 \theta$, $0^\circ < \theta < 90^\circ$, then what is the value of $\frac{\tan \theta + \sec \theta}{\cot \theta + \operatorname{cosec} \theta}$

A $\frac{3+2\sqrt{3}}{2}$

B $\frac{2+3\sqrt{3}}{3}$

C $\frac{2+3\sqrt{3}}{2}$

D $\frac{3+2\sqrt{3}}{3}$

Answer: D

Explanation:

$$5 \cos^2 \theta + 1 = 3 \sin^2 \theta$$

$$5 \cos^2 \theta + \sin^2 \theta + \cos^2 \theta = 3 \sin^2 \theta$$

$$6 \cos^2 \theta = 2 \sin^2 \theta$$

$$\tan^2 \theta = 3$$

$$\tan \theta = \sqrt{3}$$

$$\theta = 60^\circ$$

$$\frac{\tan \theta + \sec \theta}{\cot \theta + \operatorname{cosec} \theta}$$

$$= \frac{\tan 60^\circ + \sec 60^\circ}{\cot 60^\circ + \operatorname{cosec} 60^\circ}$$

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

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

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

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Question 73

A can do a piece of work in 6 days. B can do it in 9 days. With the assistance of C they completed the work in 3 days. In how many days can C alone do the work ?

A 18

B 8

C 12

D 16

Answer: A

Explanation:

Let the total work be 18 units.

(\because LCM of 6, 9 and 3 is 18.)

Efficiency of A = work/time = $18/6 = 3$ units/day

Efficiency of B = $18/9 = 2$ units/day

Efficiency of (A + B + C) = $18/3 = 6$ units/day

Efficiency of C = Efficiency of (A + B + C) - Efficiency of A - Efficiency of B = $6 - 3 - 2 = 1$ unit/day

Time taken by C to complete work alone = $18/1 = 18$ days

Question 74

If $a^4 + \frac{1}{a^4} = 50$, then find the value of $a^3 + \frac{1}{a^3}$

A $\sqrt{2(1 + \sqrt{3})} + (-1 + 2\sqrt{13})$

B $\sqrt{2(1 + \sqrt{3})}(3 - 2\sqrt{13})$

C $\sqrt{2(\sqrt{13} + 1)}(3 + 2\sqrt{13})$

D $\sqrt{2(1 - \sqrt{3})}(-1 + 2\sqrt{13})$

Answer: C

Explanation:

$$a^4 + \frac{1}{a^4} = 50$$

$$a^4 + \frac{1}{a^4} + 2 = 50 + 2$$

$$(a^2 + \frac{1}{a^2})^2 = 52$$

$$(a^2 + \frac{1}{a^2}) = \sqrt{52}$$

$$a^2 + \frac{1}{a^2} + 2 = \sqrt{52} + 2$$

$$(a + \frac{1}{a})^2 = \sqrt{52} + 2$$

$$(a + \frac{1}{a}) = \sqrt{\sqrt{52} + 2}$$

$$a^3 + \frac{1}{a^3} = (a + \frac{1}{a})^3 + 3ab(a + \frac{1}{a})$$

$$= (\sqrt{\sqrt{52} + 2})^3 + \sqrt{\sqrt{52} + 2}$$

$$= (\sqrt{2\sqrt{13} + 2})^3 + \sqrt{2\sqrt{13} + 2}$$

$$= \sqrt{2\sqrt{13} + 2}(1 + (\sqrt{2\sqrt{13} + 2})^2)$$

$$= \sqrt{2\sqrt{13} + 2}(1 + 2\sqrt{13} + 2)$$

$$= \sqrt{2(\sqrt{13} + 1)}(3 + 2\sqrt{13})$$

Question 75

The following table showing the percentage of the total population of a state in different age groups.

Age group (in years)	Population (in percentage)
0-15	31
15-25	5.25
25-35	14.25
35-45	14.5
45-55	17.25
55 & above	17.75
Total	100

Out of every 50,000 people, find the approximate number of persons below the age of 35.

- A 25,250
- B 25,230
- C 26,250
- D 26,260

Answer: A

Explanation:

Percentage of persons below the age of 35 = $31 + 5.25 + 14.25 = 50.5\%$

Approximate number of persons below the age of 35 = $50,000 \times \frac{50.5}{100} = 25250$

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English Comprehension

Instructions

For the following questions answer them individually

Question 76

Select the most appropriate **ANTONYM** of the given word.

Malice

- A Goodwill
- B Truth
- C Hypocrisy
- D Humility

Answer: A

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Question 77

Select the most appropriate **ANTONYM** of the given word.

Foul

- A Proud

- B Vile
- C Nasty
- D Fair

Answer: D

Question 78

Select the INCORRECTLY spelt word

- A Fifty
- B Eighty
- C Ninety
- D Fourty

Answer: D

Question 79

Select the most appropriate meaning of the given idiom.

Cut and dried

- A Dead and gone
- B Already decided
- C Very old
- D Badly hurt

Answer: B

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Question 80

Select the correct passive form of the given sentence.

She is teaching French to children.

- A Children were taught French by her
- B Children are taught French by her.
- C Children have been taught French by her.
- D Children are being taught French by her

Answer: D

Question 81

Select the most appropriate option to substitute the underlined segment in the given sentence. If there is no need to substitute it, select No improvement.

I do not see some reasons why my application should be rejected.

- A any reason why

- B many reasons so
- C some reason for
- D No improvement

Answer: A

Instructions

In the following passage some words have been deleted. Fill in the blanks with the help of the alternatives given. Select the most appropriate option for each blank.

Comprehension:

The Matryoshka doll is also called the Russian nesting doll. It is a set (1)_____ wooden dolls decreasing in size and (2)_____ inside one another. The first such set (3)_____ in 1890. The figures inside may be of (4)_____ gender. The smallest doll is the baby, made from (5)_____ single piece of wood

Question 82

Select the most appropriate option to fill in blank number (1)

- A for
- B of
- C in
- D by

Answer: B

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Question 83

Select the most appropriate option to fill in blank number (2)

- A occupied
- B placed
- C situated
- D located

Answer: B

Question 84

Select the most appropriate option to fill in blank number (3).

- A is made
- B made
- C has been made
- D was made

Answer: D

Question 85

Select the most appropriate option to fill in blank number (4)

- A neither
- B every
- C some
- D either

Answer: D

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Question 86

Select the most appropriate option to fill in blank number (5)

- A the
- B an
- C each
- D a

Answer: D

Instructions

For the following questions answer them individually

Question 87

Select the most appropriate synonym of the given word.

Thrive

- A Shrink
- B Flourish
- C Crave
- D Languish

Answer: B

Question 88

Given below are four jumbled sentences. Out of the given options pick the one that gives their correct order.

- A. While the long thin ones are most common, there are many other varieties.
- B. Noodles are the staple food in many cultures across the world.
- C. They are then served with a sauce or in soup.
- D. However, all varieties are usually cooked in boiling water.

- A BADC
- B BCAD
- C BCDA

D BDAC

Answer: A

Explanation:

On arranging the given lines in a meaningful passage we get,

Noodles are the staple food in many cultures across the world. While the long thin ones are most common, there are many other varieties. However, all varieties are usually cooked in boiling water. They are then served with a sauce or in soup.

As we identify and write the subject first then followed by the rest of the parts like description and conclusion.

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Question 89

Select the correct indirect form of the given sentence.

The Principal has said, "Mr. Surinder will coach the football team."

- A The Principal has asked that will Mr. Surinder coach the football team
- B The Principal has said that Mr. Surinder would coach the football team
- C The Principal said that Mr. Surinder would coach the football team
- D The Principal has said that Mr. Surinder will coach the football team

Answer: D

Question 90

Select the word which means the same as the group of words given.

To rise in value

- A Extend
- B Appreciate
- C Enlarge
- D Depreciate

Answer: B

Question 91

Select the INCORRECTLY spelt word.

- A Committee
- B Colleague
- C Commission
- D Corresspond

Answer: D

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Question 92

Select the most appropriate synonym of the given word.

Assault

- A Anger
- B Alib
- C Anxiety
- D Attack

Answer: D

Question 93

Fill in the blank with the most appropriate word.

Beautiful red roses _____ the bride's hair.

- A adorned
- B allured
- C attracted
- D adjourned

Answer: A

Question 94

Select the most appropriate option to substitute the underlined segment in the given sentence. If there is no need to substitute it, select **No improvement**.

Having being warn before , he did not repeat the mistake

- A been warned before
- B being warned before
- C be warned before
- D No improvement

Answer: A

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Question 95

Identify the segment in the sentence which contains the grammatical error. If there is no error, select 'No error'

Plenty of information were given to me at the tourist office.

- A at the tourist office
- B No error
- C Plenty of information
- D were given to me

Answer: D

Question 96

Fill in the blank with the most appropriate word.

The speaker _____ the audience with his fine speech

- A expressed
- B impressed
- C depressed
- D suppressed

Answer: B

Question 97

Given below are four jumbled sentences. Out of the given options pick the one that gives their correct order.

- A. I found he was an old sailor and knew all the seafaring men in Bristol.
- B. So, I engaged him on the spot to be the ship's cook but he proved to be much more.
- C. He had lost his health ashore and wanted a berth as cook to get to the sea again.
- D. I was standing on the dock when by accident I fell in talk with a stranger

- A DACB
- B DBAC
- C BACD
- D CBAD

Answer: A

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Question 98

Select the word which means the same as the group of words given.

To brighten up with lights

- A Illuminate
- B Infuriate
- C Elucidate
- D Illustrate

Answer: A

Question 99

Select the most appropriate meaning of the underlined idiom in the given sentence.

The people were scared because the burglar was at large.

- A very dangerous
- B not caught
- C very famous

D behind bars

Answer: B

Question 100

Identify the segment in the sentence which contains the grammatical error. If there is no error, select 'No error'
As a little child she was afraid from darkness.

A she was afraid

B from darkness

C As a little child

D No error

Answer: B

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