



SSC CHSL 8 July 2019 Shift-3

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Reasoning

Instructions

For the following questions answer them individually

Question 1

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

B f D e Y 5 3 2

A **B f D e Y 5 3 2**

B **B f D e Y 5 3 2**

C **B f D e Y 5 3 2**

D **B f D e Y 5 3 2**

Answer: D

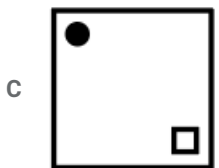
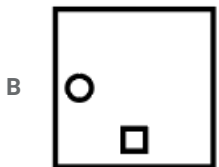
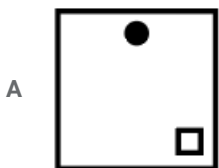
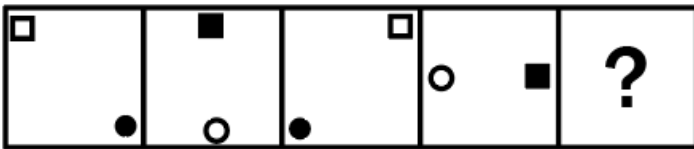
Explanation:

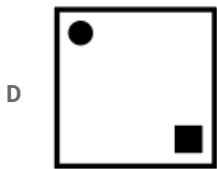
If the mirror is to the right side then according to the law of mirror image formation the letter or number which is nearest to the mirror will be nearest to the mirror after forming the mirror image. So the answer will be option D.

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Question 2

Select the figure that will come next in the following figure series.





Answer: C

Explanation:

Here figure 1 and 3 are related and figure 2 and 4 are related. So next figure will be related to figure 1 and 3. Here white squares and black circles are moving in 90 degree clockwise direction. So in the answer figure white squares will be at the right bottom and black circles will be at the top left side.

Question 3

Select the word-pair in which the two words are related in the same way as are the two words in the following word-pair.

Detailed : Meticulous

A Hungry : Fulfilled

B Loud : Loose

C Fat : Obese

D Heavy : Light

Answer: C

Explanation:

Detailed is synonymous to meticulous. Similarly Fat is synonymous of Obese.

Question 4

Three of the following four letter-clusters are alike in a certain way and one is different. Pick the odd one out.

A RVZD

B PTXB

C DHLP

D JNRW

Answer: D

Explanation:

All option except D the letters are increasing by four place values. such that in option A-

R=18, V=22, Z=26, D=4

But in option D-

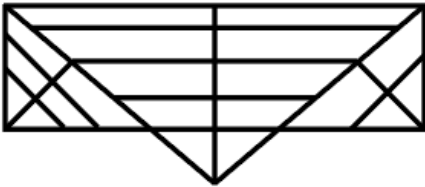
J=10, N=14, R=18, W=23

So instead of W it should be V. So option D is not following the logic.

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Question 5

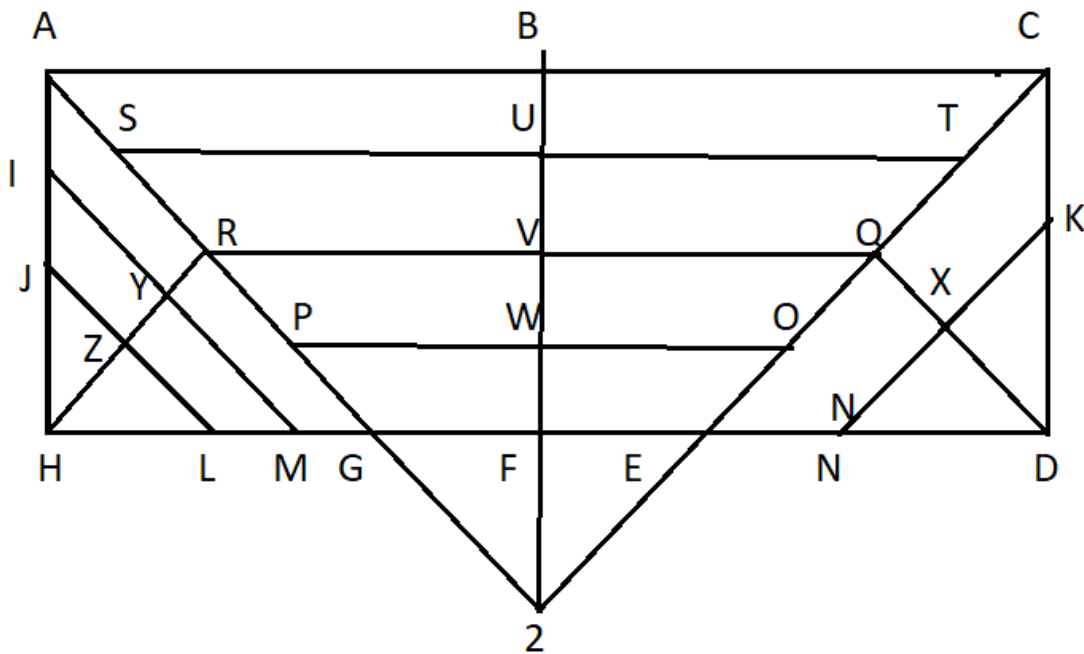
How many triangles are present in the given figure ?



- A 30
- B 32
- C 31
- D 28

Answer: A

Explanation:



Here the triangles are-

A2C, AB2, B2C, SU2, RV2, PW2, GF2, UT2, VQ2, WO2, FE2, ST2, RQ2, PO2, GE2, ECD, NKD, EQD, QCD, NXD, XKD, AGH, IMH, JLH, ARH, RHG, IYH, YMH, JZH, ZLH.

Question 6

Three of the following four numbers are alike in a certain way and one is different. Pick the number that is different from the rest.

- A 49
- B 64
- C 16
- D 25

Answer: B

Explanation:

All except option B are only square numbers. Such that 49,16 and 25 are the squares of 7,4 and 5 respectively. But 64 is not only the

square of 8 but also it is the cube of 4. So this one is odd among them.

Question 7

'Tadpole' is related to 'Frog' in the same way as 'Caterpillar' is related to '_____':

- A Baboon
- B Butterfly
- C Bat
- D Boar

Answer: B

Explanation:

Tadpole is the young version of Frog. Similarly Caterpillar is the young version of Butterfly.

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Question 8

Select the number-pair in which the two numbers are related in the same way as are the two numbers of the following number-pair.
2 : 9

- A 3 : 26
- B 7 : 50
- C 8 : 65
- D 4 : 65

Answer: D

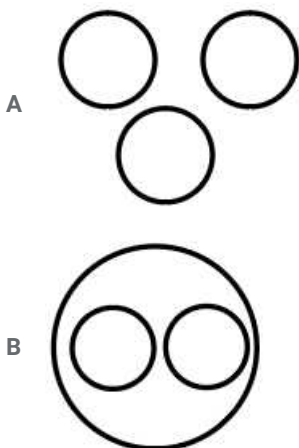
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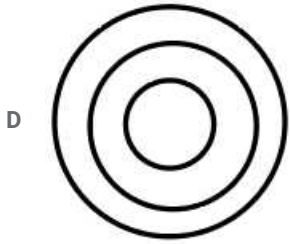
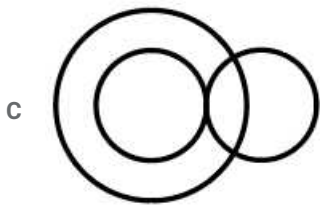
Here 2:9 is related in a way that $2^3 + 1 = 8 + 1 = 9$

Similarly, 4:65 is related- $4^3 + 1 = 64 + 1 = 65$

Question 9

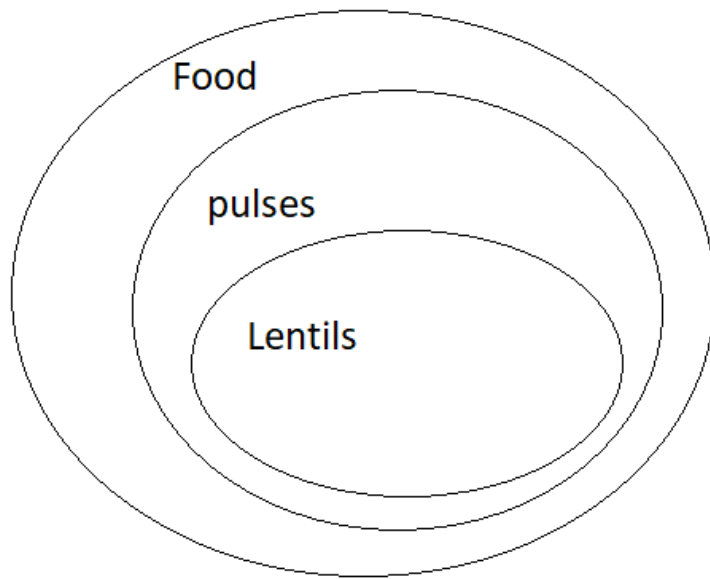
Select the Venn diagram that best illustrates the relationship between the following classes.
Food, Lentils, pulses





Answer: D

Explanation:



Pulses are included in Food grains and Lentils are one kind of pulse.

Question 10

Which number will replace the question mark (?) in the following series?

77, 92, 125, 178, 253, ?

A 350

B 351

C 352

D 353

Answer: C

Explanation:

77, 92, 125, 178, 253, _

15 33 53 75

18 20 22

According to the above logic next number will be $(253+75+24) = 352$

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Question 11

Two statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

Some chillies are potatoes.

Some potatoes are onions.

Conclusions:

I. Some onion s are chillies.

II. Some onions are potatoes.

III. No onion is chilly.

A Conclusion II and either conclusion I or III follow.

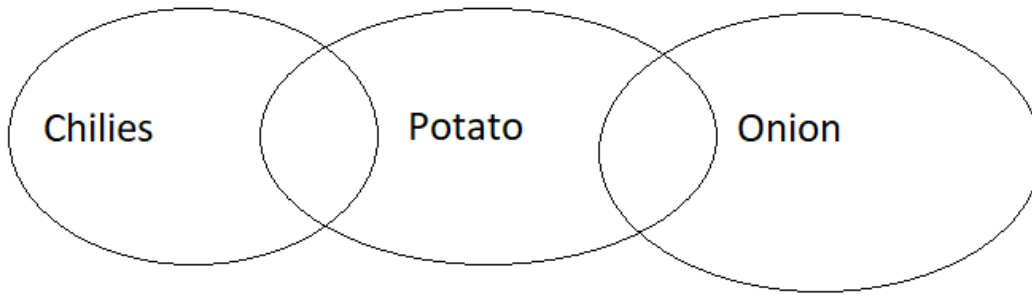
B Only conclusions I and II follow.

C Only conclusions II and III follow.

D Conclusion I and either conclusion II or III follow.

Answer: A

Explanation:



Conclusion 2 i.e; some onions are potato is correct. But conclusion 1 and 3 are not correct and the subjects are same in both the conclusion and one is in positive sense and the other is in negative. So they are satisfying the either-or condition.

Question 12

A total sum of ₹153 is distributed among three friends A, B and C in such a way that C gets 5 times as much money than A gets and B gets 3 times as much money than A gets. How many rupees does B get?

- A 51
- B 65
- C 61
- D 66

Answer: A

Explanation:

Let us assume that A gets 1 unit. So B and C get 3 and 5 units respectively. So the ratio between A,B and C will be - 1:3:5.

Again, it is given that $A+B+C=153$.

Now according to the unit sum, 9 unit = 153

Therefore, 1 unit = 17

B will get 3 unit = $3 \times 17 = 51$

Question 13

$A + B$ means 'A is sister of B'

$A - B$ means 'A is daughter of B'

$A \times B$ means 'A is brother of B'

$A \div B$ means 'A is mother of B'

If $D + P \div I \times K \div T - R$, then how is R related to P ?

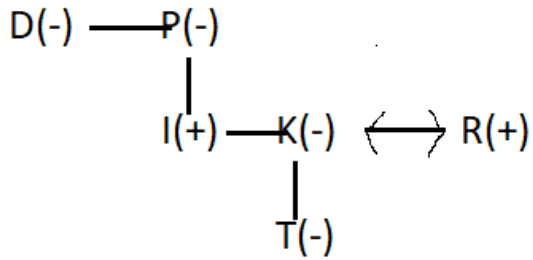
- A Daughter's husband
- B Son
- C Daughter's son



D Brother

Answer: A

Explanation:



Here (-) means they are female and (+) means male and double arrow means they are couple.

So, here K is the daughter of P and R is the husband of K. So, the relation between P and R is that R is the son in law of P.

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Question 14

Select the combination of letters that when sequentially placed in the gaps of the given letter series will complete the series.

x _ _ y q _ _ t x z _ _ q s q t x _ _ y q s _ t

A y y s q z y z y q

B z y q s y z z y q

C z y s q y y z y q

D z y s q y y z t

Answer: C

Explanation:

x z y y q s q t | x z y y q s q t | x z y y q s q t

If we divide the given series in three equal part then each part will have same letters with same sequence.

Question 15

Select the set in which the numbers are related in the same way as are the numbers of the following set.

(4, 113, 7)

A (3, 118, 9)

B (6, 161, 4)

C (8, 155, 4)

D (5, 141, 4)

Answer: D

Explanation:

The logic behind the given set (4,113,7) is-

$$4^3 + 7^2 = 64 + 49 = 113$$

Similarly,

$$5^3 + 4^2 = 125 + 16 = 141$$

Question 16

If DIRECTOR is coded as 49953269, then how will FRIENDLY be coded as?

A 68955438

B 69955437

C 79954435

D 69845447

Answer: B

Explanation:

Here the letters are coded according to their place values in the English alphabetical series.

$$D=4, I=9, R=18=(1+8)=9, E=5, C=3, T=20=(2+0)=2, O=15=(1+5)=6, R=18=(1+8)=9$$

Similarly,

$$F=6, R=18=(1+8)=9, I=9, E=5, N=14=(1+4)=5, D=4, L=12(1+2)=3, Y=25=(2+5)=7$$

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Question 17

Select the set in which the numbers are related in the same way as are the numbers of the following set.

(8, 112, 28)

A (14, 364, 52)

B (12, 216, 34)

C (16, 282, 36)

D (18, 216, 22)

Answer: A

Explanation:

The logic behind the given set (8,112,28) is-

$$8 \times 28 = 224$$

$$224 \div 2 = 112$$

Similarly,

$$14 \times 52 = 728$$

$$728 \div 2 = 364$$

Question 18

In a code language, ADVISORY is written as GDLYRVBU. How will CHEMICAL be written as in that language?

- A MFOHFLOD
- B KFPHFLOD
- C JFPGFMOD
- D KFQHFLPE

Answer: B

Explanation:

3	8	5	13	9	3	1	12
C	H	E	M	I	C	A	L
X	X	X	X	X	X	X	X
K	F	P	H	F	L	O	D
11	6	16	8	6	12	15	4
+3	+3	+3	+3	+3	+3	+3	+3

Question 19

Select the option that is related to the third letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster.

SMKJ : VONL :: DPOA : ?

- A HRRD
- B GRRD
- C GSSC
- D GSSD

Answer: B

Explanation:

19	13	11	10
S	M	K	J
V	O	N	L
22	15	14	12
(+3)	(+2)	(+3)	(+2)

4	16	15	1
D	P	O	A
G	R	R	C
7	18	18	3
(+3)	(+2)	(+3)	(+2)

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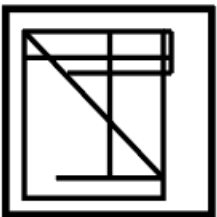
Question 20

Select the option in which Figure-X is embedded. (Rotation is not allowed)

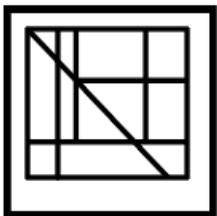


Figure-X

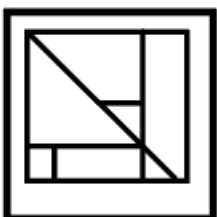
A



B



C



D



Answer: B

Explanation:

If we observe the given figure and option figures then we can clearly see that the given figure X is embedded in the figure of option B.

Question 21

Which two numbers should be interchanged in the following equation to make it correct?

$$731 \div 13 + 450 - 25 \times 43 = 142$$

A 13 and 43

B 731 and 450

C 13 and 25

D 450 and 25

Answer: A

Explanation:

If we interchange the position of 13 and 43 then we get,

$$731 \div 43 + 450 - 25 \times 13$$

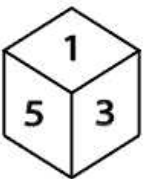
$$= 17 + 450 - 325$$

$$= 467 - 325$$

$$= 142$$

Question 22

Two different positions of the same dice are shown below, the six faces of which are numbered 1 to 6. Find the number on the face opposite to the one having 5.



A 6

B 4

C 2

D 3

Answer: C

Explanation:

Here, we have two dice and each have the number 5. 1,3,4,6 are at the adjacent sides of 5. So they can't be at the opposite surface of 5. Only 2 is left so, 2 is at the opposite surface of 5.

Question 23

Arrange the following activities in a logical and meaningful order.

1. Attending classes in college
2. Admission merit list declaration
3. Getting admission in the college
4. Applying for admission to college
5. Annual Examination - Class 12
6. Result declaration - Class 12

A 5, 6, 4, 2, 3, 1

B 5, 6, 4, 2, 1, 3

C 6, 5, 4, 2, 3, 1

D 5, 6, 2, 4, 3, 1

Answer: A

Explanation:

If we arrange the given events in a logical way then at first the Annual Examination - Class 12 will be held. Then result of Examination - Class 12 will be declared. After that one should apply for admission to college. Then Admission merit list will be declared. After that one will get admission in the college. Then one will attend classes in college.

Question 24

Three of the following four words are alike in a certain way and one is different. Pick the odd word out.

A Serene

B Apprehensive

C Anxious

D Nervous

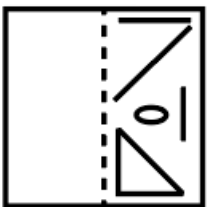
Answer: A

Explanation:

Apprehensive, Anxious and Nervous are synonymous to worry. But Serene is synonymous with Calm and peaceful.

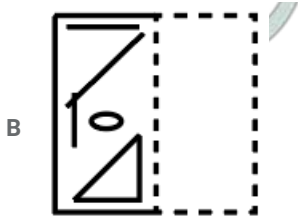
Question 25

A figure of transparent sheet with a pattern is given below. Select the option that shows how the pattern would appear when the transparent sheet is folded at the dotted line.

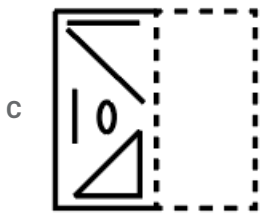


A

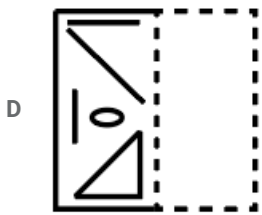




B



C



D

Answer: D

Explanation:

If we assume the dotted line as a mirror then according to the law of mirror image the nearest one to the mirror will remain the nearest one after formation of the mirror image. So, here option D is the right one.

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General knowledge

Instructions

For the following questions answer them individually

Question 26

Which one of the following nations will host the FIFA U-17 Women's World Cup in 2020?

- A China
- B India
- C Nepal
- D Bangladesh

Answer: B

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Question 27

Who among the following wrote the book 'Wise and Otherwise'?

- A Jhumpa Lahiri
- B Arundhati Roy

- C Gita Piramal
- D Sudha Murthy

Answer: D

Question 28

_____ is a type of good for which demand increases as its price rises.

- A Club Good
- B Giffen Good
- C Capital Good
- D Consumer Good

Answer: B

Question 29

Matters, which are not points of order, can be raised by way of Special Mentions under Rule _____ of Lok Sabha.

- A 223
- B 214
- C 377
- D 302

Answer: C

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Question 30

After the battle of _____ in 1757, the British achieved political power in India.

- A Plassey
- B Saragarhi
- C Buxar
- D Aliwal

Answer: A

Question 31

Flower colours of red, pink, blue and purple come mainly from pigments called _____.

- A Anthocyanins
- B Carotenoids
- C Chlorophyll
- D Lycopene

Answer: A

Question 32

In 2019, radar imaging satellite RISAT-2B was launched successfully by the Sathish Dhawan Space Centre located in _____.

- A Thiruvananthapuram
- B Mumbai
- C Sriharikota
- D Balasore

Answer: C

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Question 33

Which one of the following is NOT a output device?

- A Plotter
- B Headphones
- C Projector
- D Joystick

Answer: D

Question 34

Which Sikh Guru compiled the 'Adi Granth' the holy scripture of Sikhism?

- A Guru Amar Das
- B Guru Hargobind
- C Guru Ram Das
- D Guru Arjan Dev

Answer: D

Question 35

The famous dancer Chemancheri Kunhiraman Nair is associated with which of the following dance forms?

- A Manipuri
- B Sattriya
- C Mohiniyattam
- D Kathakali

Answer: D

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Question 36

Bumchu' is a unique cultural festival celebrated in the Indian state of:

- A West Bengal
- B Odisha
- C Sikkim
- D Assam

Answer: C

Question 37

In 1973, the Project Tiger was started in _____National Park.

- A Jim Corbett
- B Sanjay Gandhi
- C Bhitarkanika
- D Sunderbans

Answer: A

Question 38

As of June 2019, which Indian state has the lowest number of districts?

- A Arunachal Pradesh
- B Goa
- C Sikkim
- D Telangana

Answer: B

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Question 39

A chain of islands closely scattered in a body of water is called:

- A Strait
- B Archipelago
- C Canyon
- D Reef

Answer: B

Question 40

Which author has been awarded the 27th Vyas Samman of the K.K. Birla Foundation in 2018 ?

- A Mamta Kalia
- B Yogita Yadav
- C Pankaj Dubey
- D Ashish Chaudhary

Answer: A

Question 41

A/an _____ is the wide end of a river that meets the sea.

- A Meander
- B Gorge
- C Creek
- D Estuary

Answer: D

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Question 42

With which of the following sports is the term 'twiddle' associated?

- A Cricket
- B Rugby
- C Table Tennis
- D Hockey

Answer: C

Question 43

Which process refers to the starting up of a computer and the loading of the required parts of the operating system into the RAM?

- A Booting
- B Tagging
- C Swipping
- D Mapping

Answer: A

Question 44

In India the Ursa Major Constellation is also known as:

- A Maharshi

- B Saptarshi
- C Swadeshi
- D Devarshi

Answer: B

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Question 45

The _____ is the stem-like part of the leaf that joins the blade to the stem.

- A Vein
- B Stipules
- C Midrib
- D Petiole

Answer: D

Question 46

In which state was the second edition of the Indian Open International Boxing Tournament held?

- A Odisha
- B Karnataka
- C Assam
- D Madhya Pradesh

Answer: C

Question 47

In Parliamentary proceedings, how many matters per day as per their priority in the ballot are allowed to be raised during 'Zero Hour'?

- A 21
- B 18
- C 19
- D 20

Answer: D

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Question 48

A/an _____ stock is the stock of a large, well-established and financially sound company that has operated for many years.

- A Income

- B Blue-Chip
- C Cyclical
- D Defensive

Answer: B

Question 49

Which Indian contemporary artist was awarded the 7th Joan Miro Prize 2019 ?

- A Nalini Malani
- B Vivan Sundaram
- C Arpita Singh
- D Atul Dodiya

Answer: A

Question 50

The Indian movie star Rahul Bose was associated with _____ sport of India.

- A Football
- B Rugby
- C Rowing
- D Squash

Answer: B

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Quant

Instructions

For the following questions answer them individually

Question 51

The compound interest on a certain sum of money at 21% for 2 years is ₹9,282. Its simple interest (in ₹) at the same rate and for the same period is:

- A 8,500
- B 8,400
- C 8,000
- D 8,750

Answer: B

Explanation:

Given, Compound interest (C.I) = ₹9,282

Rate (R%) = 21%, Time (T) = 2 years

Let the Principal Amount be P

$$\Rightarrow 9282 = P \left(1 + \frac{21}{100}\right)^2 - P$$

$$\Rightarrow 9282 = P \left(\frac{121}{100}\right)^2 - P$$

$$\Rightarrow 9282 = P \left(\frac{14642}{10000}\right) - P$$

$$\Rightarrow 9282 = \frac{4642}{10000} P$$

$$\Rightarrow P = 2 \times 10000$$

$$\Rightarrow P = ₹20000$$

$$\therefore \text{Simple Interest} = \frac{PTR}{100} = \frac{20000 \times 2 \times 21}{100} = ₹8400$$

Hence, the correct answer is Option B

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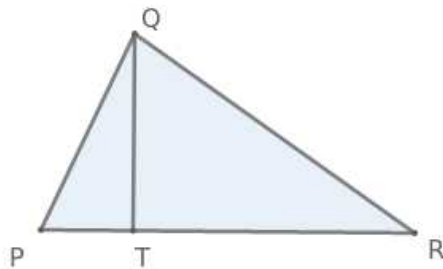
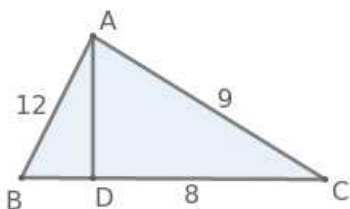
Question 52

Let $\triangle ABC \sim \triangle QPR$ and $\frac{\text{ar}(\triangle ABC)}{\text{ar}(\triangle PQR)} = \frac{4}{25}$. If $AB = 12$ cm, $BC = 8$ cm and $AC = 9$ cm, then PR is equal to:

- A 18
- B 15
- C 17.5
- D 20

Answer: D

Explanation:



Let AD is the altitude of $\triangle ABC$ and QT is the altitude of $\triangle QPR$ as shown in figure

Given, $\triangle ABC \sim \triangle QPR$

$$\Rightarrow \frac{AB}{QP} = \frac{BC}{PR} = \frac{AC}{QR} = \frac{AD}{QT}$$

$$\text{Let } \frac{AB}{QP} = \frac{BC}{PR} = \frac{AC}{QR} = \frac{AD}{QT} = t$$

$$\text{Given, } \frac{\text{ar}(\triangle ABC)}{\text{ar}(\triangle PQR)} = \frac{4}{25}$$

$$\Rightarrow \frac{\frac{1}{2} \times AD \times BC}{\frac{1}{2} \times QT \times PR} = \frac{4}{25}$$

$$\Rightarrow \frac{tQT \times tPR}{QT \times PR} = \frac{4}{25}$$

$$\Rightarrow t^2 = \frac{4}{25}$$

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

$$\therefore \frac{BC}{PR} = t = \frac{2}{5}$$

$$\Rightarrow \frac{8}{PR} = \frac{2}{5}$$

$$\Rightarrow PR = 20 \text{ cm}$$

Hence, the correct answer is Option D

Question 53

The distance between the centres of two circles of radius 3 cm and 2 cm is 13 cm. The length (in cm) of a transverse common tangent is:

A 8

B 12

C 6

D 10

Answer: B

Explanation:

Radius of first circle (r_1) = 3 cm

Radius of second circle (r_2) = 2 cm

The distance between centres of two circles (d) = 13 cm

$$\therefore \text{Length of the common tangent} = \sqrt{d^2 - (r_1 + r_2)^2}$$

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

$$= \sqrt{169 - 25}$$

$$= \sqrt{144}$$

$$= 12 \text{ cm}$$

Hence, the correct answer is Option B

Question 54

If $x^4 + x^{-4} = 47$, ($x > 0$), then the value of $(2x-3)^2$ is:

A 5

B 3

C 4

D 2

Answer: A

Explanation:

$$\text{Given, } x^4 + x^{-4} = 47$$

$$\Rightarrow x^4 + \frac{1}{x^4} + 2 = 47 + 2$$

$$\Rightarrow \left(x^2 + \frac{1}{x^2}\right)^2 = 49$$

$$\Rightarrow x^2 + \frac{1}{x^2} = 7$$

$$\Rightarrow x^2 + \frac{1}{x^2} + 2 = 7 + 2$$

$$\Rightarrow \left(x + \frac{1}{x}\right)^2 = 9$$

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

$$\Rightarrow x^2 - 3x + 1 = 0$$

$$\Rightarrow x^2 - 3x = -1$$

$$\therefore (2x - 3)^2 = 4x^2 + 9 - 12x = 4(x^2 - 3x) + 9 = 4(-1) + 9 = 5$$

Hence, the correct answer is Option A

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Question 55

If $x = 2 + \sqrt{5}$ then the value of $(x^3 - x^{-3})$ is:

A 52

B 76

C -76

D -52

Answer: B

Explanation:

Given, $x = 2 + \sqrt{5}$

$$\Rightarrow \frac{1}{x} = \frac{1}{2 + \sqrt{5}}$$

$$\Rightarrow \frac{1}{x} = \frac{1}{2 + \sqrt{5}} \times \frac{2 - \sqrt{5}}{2 - \sqrt{5}}$$

$$\Rightarrow \frac{1}{x} = \frac{2 - \sqrt{5}}{4 - 5}$$

$$\Rightarrow \frac{1}{x} = \sqrt{5} - 2$$

$$\therefore x - \frac{1}{x} = (2 + \sqrt{5}) - (\sqrt{5} - 2) = 4$$

$$\Rightarrow \left(x - \frac{1}{x}\right)^3 = 4^3$$

$$\Rightarrow x^3 - \frac{1}{x^3} - 3 \cdot x \cdot \frac{1}{x} \left(x - \frac{1}{x}\right) = 64$$

$$\Rightarrow x^3 - \frac{1}{x^3} - 3(4) = 64$$

$$\Rightarrow x^3 + x^{-3} = 76$$

Hence, the correct answer is Option B

Question 56

If $a^3 + b^3 = 1344$ and $a + b = 28$, then $(a + b)^2 - 3ab$ is equal to:

A 48

B 16

C 24

D 32

Answer: A

Explanation:

Given, $a^3 + b^3 = 1344$ and $a + b = 28$

$$\Rightarrow (a + b)(a^2 - ab + b^2) = 1344$$

$$\Rightarrow 28(a^2 - ab + b^2 - 2ab + 2ab) = 1344$$

$$\Rightarrow (a + b)^2 - 3ab = \frac{1344}{28}$$

$$\Rightarrow (a + b)^2 - 3ab = 48$$

Hence, the correct answer is Option A

Question 57

A earns ₹640 per day and works for 8 hours. B earns ₹360 per day and works for 6 hours. The ratio of per day wages of A to that of B is:

A 16 : 9

B 4 : 5

C 5 : 4

D 9 : 16

Answer: A

Explanation:

Wage of A per day = ₹640

Wage of B per day = ₹360

∴ Ratio of per day wages of A to that of B = 640 : 360 = 16 : 9

Hence, the correct answer is Option A

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Question 58

The simplified value of $\frac{46-\frac{3}{4} \text{ of } 32-6}{37-\frac{3}{4} \text{ of } (34-6)}$ is:

A 1

B 2

C $\frac{19}{16}$

D $\frac{19}{64}$

Answer: A

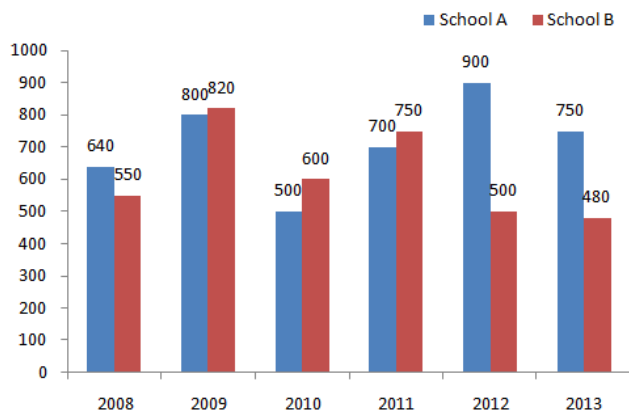
Explanation:

$$\frac{46-\frac{3}{4} \text{ of } 32-6}{37-\frac{3}{4} \text{ of } (34-6)} = \frac{46-\frac{3}{4} \times 32-6}{37-\frac{3}{4} \text{ of } (28)} = \frac{46-24-6}{37-21} = \frac{16}{16} = 1$$

Hence, the correct answer is Option A

Question 59

The given Bar Graph presents the number of students of two schools for six years.



In which year the sum of the students in two schools is the highest ?

- A 2008
- B 2011
- C 2012
- D 2009

Answer: D

Explanation:

The sum of the students in two schools in 2008 = $640 + 550 = 1190$

The sum of the students in two schools in 2009 = $800 + 820 = 1620$

The sum of the students in two schools in 2011 = $700 + 750 = 1450$

The sum of the students in two schools in 2012 = $900 + 500 = 1400$

\therefore The sum of the students in two schools is highest in 2009

Hence, the correct answer is Option D

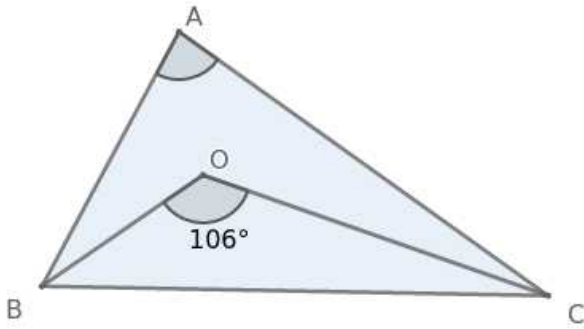
Question 60

In $\triangle ABC$, the bisectors of $\angle B$ and $\angle C$ meet at O, inside the triangle. If $\angle BOC = 106^\circ$, then the measure of $\angle A$ is:

- A 32°
- B 16°
- C 106°
- D 84°

Answer: A

Explanation:



From the figure,

OB and OC are angular bisectors of $\angle B$ and $\angle C$

$$\Rightarrow \angle OBC = \frac{\angle B}{2} \text{ and } \angle OCB = \frac{\angle C}{2}$$

$$\Rightarrow \angle B = 2\angle OBC \text{ and } \angle C = 2\angle OCB$$

In $\triangle OBC$,

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

$$\Rightarrow 106^\circ + \angle OBC + \angle OCB = 180^\circ$$

$$\Rightarrow \angle OBC + \angle OCB = 180^\circ - 106^\circ$$

$$\Rightarrow \angle OBC + \angle OCB = 74^\circ \dots\dots\dots(1)$$

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

$$\Rightarrow \angle A + 2\angle OBC + 2\angle OCB = 180^\circ$$

$$\Rightarrow \angle A + 2(\angle OBC + \angle OCB) = 180^\circ$$

$$\Rightarrow \angle A + 2(74^\circ) = 180^\circ$$

$$\Rightarrow \angle A = 180^\circ - 148^\circ$$

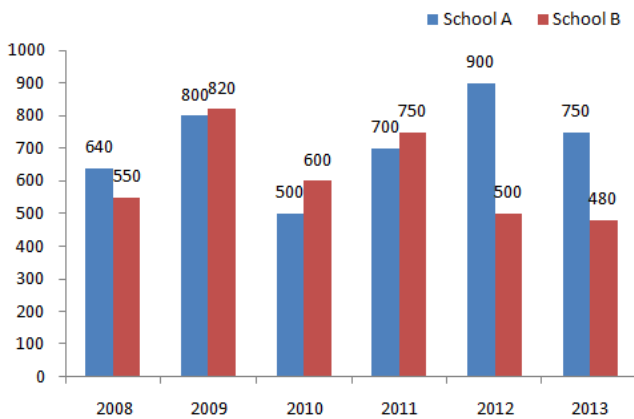
$$\Rightarrow \angle A = 32^\circ$$

Hence, the correct answer is Option A

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Question 61

The given Bar Graph presents the number of students of two schools for six years.



What is the ratio of the number of students taken together for the years 2008, 2012 and 2013 in School A to the number of students taken together for the years 2008, 2012 and 2013 in school B?

A 117 : 101

B 153 : 229

C 101 : 117

D 229 : 153

Answer: D

Explanation:

The number of students taken together for the years 2008, 2012 and 2013 in School A = $640+900+750 = 2290$

The number of students taken together for the years 2008, 2012 and 2013 in School B = $550+500+480 = 1530$

\therefore Required ratio = $2290 : 1530 = 229 : 153$

Hence, the correct answer is Option D

Question 62

A man bought three articles for ₹3,000 each. He sold the articles respectively at 10% profit, 5% profit and 15% loss. The total percentage profit/loss he earned is:

A 10% loss

B 5% profit

C No profit no loss

D 5% loss

Answer: C

Explanation:

Total Cost Price of three articles = $3 \times 3000 = ₹9,000$

Selling Price of article sold at 10% profit = $\frac{110}{100} \times 3000 = ₹3300$

Selling Price of article sold at 5% profit = $\frac{105}{100} \times 3000 = ₹3150$

Selling Price of article sold at 15% loss = $\frac{85}{100} \times 3000 = ₹2550$

Total Selling Price of 3 articles = $3300+3150+2550 = ₹9000$

\therefore Total Selling Price = Total Cost Price

\Rightarrow There is no profit and no loss

Hence, the correct answer is Option C

Question 63

A and B can complete a piece of work in 15 days and 10 days respectively. They got a contract to complete the work for ₹75000. The share of B (in ₹) in the contracted money will be:

A 45,000

B 30,000

C 35,000

D 40,000

Answer: A

Explanation:

Let the total work be T

Work done by A in 1 day = $\frac{T}{15}$

Work done by B in 1 day = $\frac{T}{10}$

Ratio of their shares = $\frac{T}{15} : \frac{T}{10} = 10 : 15 = 2 : 3$

Share of B = $\frac{3}{5} \times 75000 = 45000$

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Question 64

If $4(\operatorname{cosec}^2 65^\circ - \tan^2 25^\circ) - \sin 90^\circ - \tan^2 63^\circ y \tan^2 27^\circ = \frac{y}{2}$, then the value of y is:

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

Answer: A

Explanation:

$$4(\operatorname{cosec}^2 65^\circ - \tan^2 25^\circ) - \sin 90^\circ - \tan^2 63^\circ y \tan^2 27^\circ = \frac{y}{2}$$

$$\Rightarrow 4(\operatorname{cosec}^2 65^\circ - \tan^2 (90 - 65)^\circ) - (1) - \tan^2 63^\circ y \tan^2 (90 - 63)^\circ = \frac{y}{2}$$

$$\Rightarrow 4(\operatorname{cosec}^2 65^\circ - \cot^2 65^\circ) - 1 - \tan^2 63^\circ y \cot^2 63^\circ = \frac{y}{2}$$

$$\Rightarrow 4(1) - 1 - y = \frac{y}{2}$$

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

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

$$\Rightarrow y = 2$$

Hence, the correct answer is Option A

Question 65

If each side of a rectangle is decreased by 13%, then its area will decrease by:

- A 13%
- B 24.31%
- C 21.69%
- D 26%

Answer: B

Explanation:

Let the length and breadth of the rectangle are l and b respectively

$$\text{Area of the rectangle (A)} = lb$$

If length and breadth are decreased by 13% then

$$\text{Area of the rectangle (A')} = \frac{87}{100}l \times \frac{87}{100}b = \frac{7569}{10000}lb$$

$$\therefore \text{Required Percentage} = \frac{A-A'}{A} \times 100 = \frac{lb - \frac{7569}{10000}lb}{lb} \times 100 = \frac{2431}{10000} \times 100 = 24.31\%$$

Hence, the correct answer is Option B

Question 66

If $\cos x = \frac{-\sqrt{3}}{2}$ and $\pi < x < \frac{3\pi}{2}$, then the value of $2 \cot^2 x - 3 \sec^2 x$ is:

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

Answer: C

Explanation:

Given, $\cos x = \frac{-\sqrt{3}}{2}$

$\Rightarrow \sec x = \frac{-2}{\sqrt{3}}$

$\therefore 2 \cot^2 x - 3 \sec^2 x = \tan^2 x - 3 \sec^2 x$

$= \sec^2 x - 1 - 3 \sec^2 x$

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

$= \frac{4}{3} - 1 - 3 \left(\frac{4}{3}\right)$

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

$= 1 - 4$

$= -3$

Hence, the correct answer is Option C

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Question 67

The average age of fifteen persons is 32 years. If two more persons are added then the average is increased by 3 years. The new persons have an age difference of 9 years between them. The age (in years) of the elder among the new persons is:

- A 62
- B 53
- C 50
- D 58

Answer: A

Explanation:

given the average age of 15 people is 32yrs

so, total sum of ages = $32 \times 15 = 480$

if two more persons are added then then average is increased by 3 years

the age of two persons has difference of 9

let the ages be $x, x+9$

so $2x+9 + \text{sum of 15 people} / 17 = 32+3$

$$2x+9+480/17=35$$

$$2x+489=595$$

$$2x=106$$

$$x=53$$

question is asked to find the age of new elder person

$$\text{i.e. } x+9=53+9=62$$

hence answer is option A

Question 68

If $\cot \theta = 5x$ and $\operatorname{cosec} \theta = \frac{5}{x}$ ($x \neq 0$), then the value of $5 \left(x^2 - \frac{1}{x^2} \right)$ is:

A $-\frac{1}{5}$

B $-\frac{1}{4}$

C $\frac{1}{5}$

D $\frac{1}{2}$

Answer: A

Explanation:

$$\text{Given, } \cot \theta = 5x \text{ and } \operatorname{cosec} \theta = \frac{5}{x}$$

$$\text{We know that, } \operatorname{cosec}^2 \theta - \cot^2 \theta = 1$$

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

$$\Rightarrow \frac{25}{x^2} - 25x^2 = 1$$

$$\Rightarrow 25 \left(\frac{1}{x^2} - x^2 \right) = 1$$

$$\Rightarrow x^2 - \frac{1}{x^2} = \frac{-1}{25}$$

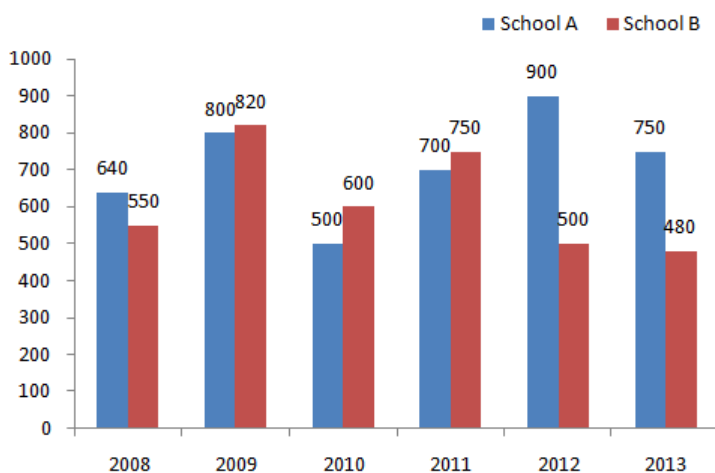
$$\Rightarrow 5 \left(x^2 - \frac{1}{x^2} \right) = \frac{-5}{25}$$

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

Hence, the correct answer is Option A

Instructions

The given Bar Graph presents the number of students of two schools for six years.



Question 69

In which year the percentage increase in the number of total students in schools A and B taken together is the highest in comparison to its previous year?

- A 2012
- B 2009
- C 2010
- D 2011

Answer: B

Explanation:

Total students in School A and B together in 2008 = 640+550 = 1190

Total students in School A and B together in 2009 = 800+820 = 1620

Total students in School A and B together in 2010 = 500+600 = 1100

Total students in School A and B together in 2011 = 700+750 = 1450

Total students in School A and B together in 2012 = 900+500 = 1400

Total students in School A and B together in 2013 = 750+480 = 1230

$$\text{Percentage increase in 2009 from 2008} = \frac{1620-1190}{1190} \times 100 = \frac{430}{1190} \times 100 = 36.13\%$$

$$\text{Percentage increase in 2010 from 2011} = \frac{1450-1100}{1100} \times 100 = \frac{350}{1100} \times 100 = 31.81\%$$

There was decrease in number of students in 2010 from 2009 and 2012 from 2011.

∴ Percentage increase in 2009 from 2008 is highest

Hence, the correct answer is Option B

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Question 70

What is the average (Correct to two decimal places) of total students in schools A and B taken together during the six year period?

- A 1133.57
- B 1122.57
- C 1331.67
- D 1221.67

Answer: C

Explanation:

Total students in School A and B together in 2008 = 640+550 = 1190

Total students in School A and B together in 2009 = 800+820 = 1620

Total students in School A and B together in 2010 = 500+600 = 1100

Total students in School A and B together in 2011 = 700+750 = 1450

Total students in School A and B together in 2012 = 900+500 = 1400

Total students in School A and B together in 2013 = 750+480 = 1230

$$\text{The average of total students in schools A and B taken together during the six year period} = \frac{1190+1620+1100+1450+1400+1230}{6} = \frac{7990}{6} = 1331.67$$

Hence, the correct answer is Option C

Instructions

For the following questions answer them individually

Question 71

The sum of the salaries of A and B together is ₹45000. A spends 85% of his salary and B, 70% of his salary. If now their savings are the same, what is B's salary (in ₹)?

- A 12,600
- B 30,000
- C 15,000
- D 18,000

Answer: C

Explanation:

given sum of the salaries of A and B is 45000

A spends 85% of his salary ,that means 15% is saved

B spends 70% of his salary ,that means 30% is saved

given that savings of both A and B is same

so $0.15A = 0.3B$

$A = 2B$

but $A + B = 45000$

$2B + B = 45000$

$3B = 45000$

$B = 15000$

Hence answer is option C

Question 72

If the seven digit number $54x29y6$ ($x > y$) is divisible by 72, what is the value of $(2x + 3y)$?

- A 38
- B 13
- C 32
- D 23

Answer: D

Explanation:

Given, 7-digit number $54x29y6$ is divisible by 72 then the number must be divisible by 8 and 9, and $x > y$

If it is divisible by 8 then, the last three digits should be divisible by 8

$\Rightarrow 9y6$ is divisible by 8

\Rightarrow The possible values of y are 3,7

$\Rightarrow y = 3$ or $y = 7$

If it is divisible by 9 then, sum of the digits should be divisible by 9

$\Rightarrow 5 + 4 + x + 2 + 9 + y + 6 = \text{multiple of } 9$

$\Rightarrow 26 + x + y = \text{multiple of } 9$

Case 1: if $y=3$

$\Rightarrow 26+x+3 = \text{multiple of } 9$

$\Rightarrow 29+x = \text{multiple of } 9$

\Rightarrow The possible value of x is 7

$\Rightarrow x=7$ and $y=3$

Case 2: if $y=7$

$\Rightarrow 26+x+7 = \text{multiple of } 9$

$\Rightarrow 33+x = \text{multiple of } 9$

\Rightarrow The possible value of x is 3

Since $x > y$, Case 2 is not possible

$\therefore x=7$ and $y=3$

$\Rightarrow (2x+3y) = 2(7)+3(3) = 23$

Hence, the correct answer is Option D

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Question 73

A dealer buys an article marked at ₹20000 with two successive discounts of 20% and 5%. He spends ₹1800 on repairs and sells it for ₹20000, what is his profit/loss percent (correct to two decimal places)?

- A 23.64% loss
- B 17.65% profit
- C 23.46% profit
- D 17.65% loss

Answer: B

Explanation:

Given, Marked Price = ₹20000

Price after 20% discount = $\frac{80}{100} \times 20000 = ₹16000$

Price after 5% discount = $\frac{95}{100} \times 16000 = ₹15200$

He spent ₹1800 for its repair

\therefore Cost price = $15200 + 1800 = ₹17000$

Selling Price = ₹20000

Profit Percentage = $\frac{\text{Selling Price} - \text{Cost Price}}{\text{Cost Price}} \times 100 = \frac{20000 - 17000}{17000} \times 100 = \frac{3000}{17000} \times 100 = 17.65\%$

Hence, the correct answer is Option B

Question 74

The ratio between the speeds of two trains is 2 : 5. If the first train runs 350 km in 5 h, then the difference between the speeds (in km/h) of both the trains is:

- A 350
- B 105
- C 165

D 180

Answer: B

Explanation:

Let the speed of two trains be $2p$ and $5p$ respectively

$$\text{Speed of first train} = \frac{350}{5} = 70 \text{ km/hr}$$

$$\Rightarrow 2p = 70$$

$$\Rightarrow p = 35$$

$$\therefore \text{Difference between speed of both trains} = 5p - 2p = 3p = 3(35) = 105 \text{ km/hr}$$

Hence, the correct answer is Option B

Question 75

PA and PB are the tangents to a circle with centre O, from a point P outside the circle. A and B are the points on the circle. If $\angle APB = 72^\circ$, then $\angle OAB$ is equal to:

A 24°

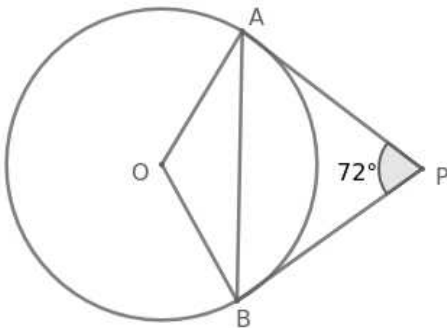
B 18°

C 36°

D 72°

Answer: C

Explanation:



Given, $\angle APB = 72^\circ$

PA and PB are the tangents to the circle with centre O

$$\Rightarrow \angle OAP = 90^\circ \text{ and } \angle OBP = 90^\circ$$

In quadrilateral OAPB,

$$\angle AOB + \angle OBP + \angle APB + \angle OAP = 360^\circ$$

$$\Rightarrow \angle AOB + 90^\circ + 72^\circ + 90^\circ = 360^\circ$$

$$\Rightarrow \angle AOB + 252^\circ = 360^\circ$$

$$\Rightarrow \angle AOB = 108^\circ$$

In $\triangle OAB$, $OA = OB$

Angles opposite to equal sides are equal in triangle

$$\Rightarrow \angle OBA = \angle OAB$$

In $\triangle OAB$,

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

$$\Rightarrow 108^\circ + \angle OAB + \angle OAB = 180^\circ$$

$$\Rightarrow 2\angle OAB = 72^\circ$$

$$\Rightarrow \angle OAB = 36^\circ$$

Hence, the correct answer is Option C

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English

Instructions

For the following questions answer them individually

Question 76

Select the most appropriate meaning of the given idiom.

Rule the roost

- A to frequently pick a quarrel
- B to blindly follow others
- C to make all the decisions
- D to be prosperous but generous

Answer: C

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Question 77

Select the most appropriate synonym of the given word.

IGNOMINIOUS

- A generous
- B innocuous
- C wonderful
- D disgraceful

Answer: D

Question 78

Select the most appropriate passive form of the given sentence.

Please lock the door.

- A Please let the door be lock.
- B You are requested to lock the door.
- C The door should kindly being locked.
- D You are being ordered to lock the door.

Answer: B

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:

Each child deserves love and care. The child who is (1) _____ for what he is even if he is slow or (2) _____, will grow with confidence in himself. He will (3) _____ the ability to make the best use of the (4) _____ which come his way and make light of any (5) _____ that may pose difficulties in his path.

Question 79

Select the most appropriate option to fill in blank number 1

- A appreciated
- B thanked
- C jeered
- D rebuked

Answer: A

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Question 80

Select the most appropriate option to fill in blank number 2

- A courteous
- B clever
- C clumsy
- D capable

Answer: C

Question 81

Select the most appropriate option to fill in blank number 3

- A consider
- B develop
- C maintain
- D conceal

Answer: B

Question 82

Select the most appropriate option to fill in blank number 4

- A dreams
- B threats

- C favours
- D opportunities

Answer: D

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Question 83

Select the most appropriate option to fill in blank number 5

- A intrusions
- B handicaps
- C consequences
- D prohibitions

Answer: B

Instructions

For the following questions answer them individually

Question 84

Identify the segment which contains the grammatical error.

Great many students who are good at other subjects perform poorly in English.

- A who are good at
- B Great many students
- C perform poorly
- D in English

Answer: B

Question 85

Select the most appropriate antonym of the given word.

RETALIATION

- A reconciliation
- B regression
- C retrospection
- D retribution

Answer: A

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Question 86

Select the wrongly spelt word.

- A eager
- B beggar
- C vehical
- D value

Answer: C

Question 87

Identify the segment which contains the grammatical error.

Climate change are a greatest threat facing our planet which needs our immediate attention.

- A which needs
- B facing our planet
- C are a greatest
- D our immediate attention

Answer: C

Question 88

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

- A. Till quite recently the trend was to go to the west that offered advanced medical facilities.
- B. This is because it has on offer the highest level of services, facilities and professional skills.
- C. But over the last decade the trend has reversed and India is being chosen for medical tourism.
- D. Today, it is not uncommon to travel to a foreign country for medical treatment.

- A BCDA
- B ABCD
- C CBDA
- D DACB

Answer: D

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Question 89

Identify the most appropriate option to substitute the underlined segment. If no substitution is required, select No substitution.

This was an only the mistake he made.

- A the only mistake
- B the mistake only
- C No substitution
- D only the mistake

Answer: A

Question 90

Select the most appropriate antonym of the given word.

LOYALTY

- A treason
- B trust
- C faith
- D fidelity

Answer: A

Question 91

Select the most appropriate indirect form of the given sentence.

She said to you, "I have a thousand rupees in my purse now."

- A She told you that she has a thousand rupees in my purse now.
- B She told you that she had a thousand rupees in her purse then.
- C She said you that she have a thousand rupees in my purse then.
- D She told me that she had a thousand rupees in her purse now.

Answer: B

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Question 92

Fill in the blank with the most appropriate word.

We must not lose heart in times of ____ .

- A diversity
- B deformity
- C adversity
- D inactivity

Answer: C

Question 93

Select the most appropriate word for the group of words.

people who enjoy social company

- A gregarious
- B gorgeous
- C herbivorous
- D unanimous

Answer: A

Question 94

Identify the most appropriate option to substitute the underlined segment. If no substitution is required, select No substitution.
He is a good singer of the two.

- A the good singer
- B the better singer
- C the best singer
- D No substitution

Answer: B

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Question 95

Select the most appropriate meaning of the given idiom.
Through thick and thin

- A to be scared of small dangers
- B to be hard-hearted in times of loss
- C support under all circumstances
- D passing through a thick forest

Answer: C

Question 96

Select the most appropriate word for the group of words.
One who eats too much

- A corpulent
- B glutton
- C overweight
- D obese

Answer: B

Question 97

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

- A. This kindness converted his street into a neighbourhood.
- B. He and his wife were always ready to lend a helping hand.
- C. Mohan was an ideal neighbour in every way.
- D. Whether it was lending tools or watering field s, the couple embodied neighbourly kindness.

- A DBCA
- B CDAB
- C BDAC
- D CBDA

Answer: D

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Question 98

Select the most appropriate synonym of the given word.
DISCOVER

- A ignore
- B find
- C hide
- D neglect

Answer: B

Question 99

Select the correctly spelt word.

- A genwin
- B genuin
- C genuine
- D genune

Answer: C

Question 100

Fill in the blank with the most appropriate word.

The landlord is very _____ about cleanliness and finds fault with all his tenants.

- A fabulous
- B pompous
- C fastidious
- D ominous

Answer: C

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