



RRB JE 2nd June 2019 Shift-2

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Instructions

For the following questions answer them individually

Question 1

Find the standard deviation of first 'n' natural numbers?

A $\sqrt{\frac{n^2+1}{6}}$

B $n\binom{n+1}{12}$

C $\sqrt{\frac{n^2-1}{12}}$

D $n\binom{2n+1}{3}$

Answer: C

Explanation:

x_i	1	2	3	4	5	n
x_i^2	1	4	9	16	25	n^2

$$\text{Now, } \sum x_i = 1 + 2 + 3 + 4 + \dots + n = \frac{n(n+1)}{2}$$

$$\text{and } \sum x_i^2 = 1^2 + 2^2 + 3^2 + \dots + n^2 = \frac{n(n+1)(2n+1)}{6}$$

$$\begin{aligned} \therefore \alpha &= \sqrt{\frac{\sum x_i^2}{n} - \left(\frac{\sum x_i}{n}\right)^2} = \sqrt{\frac{n(n+1)(2n+1)}{6n} - \frac{n^2(n+1)^2}{4n^2}} \\ &= \sqrt{\frac{(n+1)(2n+1)}{6} - \frac{(n+1)^2}{4}} = \sqrt{\frac{2(2n^2+3n+1) - 3(n^2+2n+1)}{12}} \\ &= \sqrt{\frac{4n^2+6n+2-3n^2-6n-3}{12}} = \sqrt{\frac{n^2-1}{12}} \end{aligned}$$

C is correct choice.

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Question 2

An alloy is a/an?

A Element

B Compound

C Homogenous mixture

D Heterogeneous mixture

Answer: C

Question 3

Simplify $1035 \div [{}^3_4(71+65) - 15^3_4]$

- A 12
- B 20
- C 18
- D 24

Answer: A

Explanation:

$$\begin{aligned}
 1035 &\div \left[\frac{3}{4}(71 + 65) - 15 \frac{3}{4} \right] \\
 &= 1035 \div \left[\frac{3}{4}(136) - \frac{63}{4} \right] \\
 &= 1035 \div \left[\frac{408 - 63}{4} \right] \\
 &= 1035 \times \frac{4}{345} \\
 &= 3 \times 4 = 12.
 \end{aligned}$$

A is correct choice.

Question 4

The liver oil of fish is rich in?

- A Vitamin D
- B Both Vitamin D and vitamin A
- C Vitamin E
- D Vitamin A

Answer: B

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Question 5

Find the square root of $\frac{a^2}{b^2} + \frac{b^2}{a^2} + 2$

- A $\frac{a}{b} - \frac{b}{a}$
- B $\frac{a-b}{2}$
- C $\frac{a}{2b} - \frac{b}{2a}$
- D $\frac{a}{b} + \frac{b}{a}$

Answer: D

Explanation:

$$\begin{aligned}
 &\frac{a^2}{b^2} + \frac{b^2}{a^2} + 2 \\
 &= \frac{a^4 + b^4 + 2a^2b^2}{a^2b^2} \\
 &= \frac{(a^2 + b^2)^2}{a^2b^2}
 \end{aligned}$$

So,

$$\sqrt{\frac{a^2}{b^2} + \frac{b^2}{a^2} + 2} = \frac{(a^2+b^2)}{ab} = \left(\frac{a}{b} + \frac{b}{a}\right).$$

D is correct choice.

Question 6

Find the mean of the first 10 consecutive odd numbers.

- A 11
- B 13
- C 15
- D 10

Answer: D

Explanation:

first 10 consecutive odd numbers are : 1,3,5,7,9,11,13,15,17,19.

Total=1 + 3 + 5 + 7 + 9 + 11 + 13 + 15 + 17 + 19 = 100.

So, required mean= $\frac{100}{10} = 10$.

D is correct choice.

Question 7

In a certain code, 15789 is written as 'EGKPT' and 2346 is written as 'ALUR'. How is 23549 written in that code?

- A ALEUT
- B ALGTU
- C ALGUT
- D ALGRT

Answer: C

Explanation:

15789 is written as 'EGKPT' and 2346 is written as 'ALUR'

implies that : A=2, E=1, L=3, U=4, R=6, G=5, K=7, P=8, T=9.

So, 23549=ALGUT.

C is correct choice.

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Question 8

Which of the following is more environmental friendly?

- A Burning of charcoal
- B Burning of wood
- C Burning of diesel
- D Burning of coal

Answer: A

Question 9

Substances whose odour changes in acidic or basic media are called?

- A Acidic indicators
- B Both acidic and basic indicat
- C Olfactory indicators
- D Basic indicators

Answer: C

Question 10

Find the missing group of alphabets in the following series. BV, ET, HR, KP, (...), QL

- A UV
- B QP
- C NN
- D PQ

Answer: C

Explanation:

Conversion Table

A = 1	K = 11	U = 21
B = 2	L = 12	V = 22
C = 3	M = 13	W = 23
D = 4	N = 14	X = 24
E = 5	O = 15	Y = 25
F = 6	P = 16	Z = 26
G = 7	Q = 17	
H = 8	R = 18	
I = 9	S = 19	
J = 10	T = 20	

BV, ET, HR, KP, QL means that :

$$BV = 2 + 22 = 24, ET = 5 + 20 = 25, HR = 8 + 18 = 26, KP = 11 + 16 = 27, QL = 17 + 12 = 29$$

So, after 27 ,it will be 28 by sum up to two letters.

So, it will be $NN = 14 + 14 = 28$.

C is correct choice.

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Question 11

From the set of prime numbers between 50 and 100, how many pairs of prime are there that add up to a prime number?

- A 3
- B 2
- C 0
- D 1

Answer: C

Explanation:

Prime numbers between 50 and 100 are : 53,59,61,67,71,73,79,83,89,97.

So, if we add any two of these numbers ,then we get 0,2,4,6 or 8 as unit digit.

So, that number will be divisible by 2, which means that the number is not a prime number.

C is correct choice.

Question 12

A train 110 m long is running at a speed of 60 km/hr. In what time will it pass a man who is running at 6 km/hr in the direction opposite to that in which the train is going?

- A 5 seconds
- B 6 seconds
- C 7 seconds
- D 10 seconds

Answer: B

Question 13

Which word will best complete the relationship given below? Cube : Square :: Square : ?

- A Point
- B Arc
- C Triangle
- D Line

Answer: D

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Question 14

Which information is conveyed by a balanced chemical equation?

- A The respective masses of the reactants and products
- B The total number of molecules involved in the process
- C All of the options
- D The respective formulas of the reactant and products

Answer: C

Question 15

Pratyush is India's most powerful petaflop super computer which is used in?

- A Scientific calculations in rockets
- B High precision manufacturing

- C Critical surgery
- D Weather and climate predictions

Answer: D

Question 16

Which word will best complete the relationship given below? Jungle : Zoo :: Sea : ?

- A Aquarium
- B Water
- C Harbour
- D Fish

Answer: A

Explanation:

Animals of Jungle are kept in Zoo,

Similarly, creatures from sea are kept in Aquarium.

A is correct choice.

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Question 17

Which of these is directly proportional to potential difference?

- A Current
- B Time
- C Resistivity
- D Power

Answer: A

Question 18

Find the ODD one out from the given options.

- A 38, 18
- B 36, 12
- C 83, 63
- D 35, 15

Answer: B

Explanation:

$$38, 18 \implies 38 - 18 = 20.$$

$$83, 63 \implies 83 - 63 = 20.$$

$$35, 15 \implies 35 - 15 = 20.$$

$$\text{But, } 36, 12 \implies 36 - 12 = 24.$$

So, B is correct choice.

Question 19

Simplify: $1/(\operatorname{cosec} \theta - \cot \theta)$

- A $\operatorname{Cosec} \theta + \cot \theta$
- B $\operatorname{Cosec} \theta - \cot \theta$
- C $\operatorname{Cosec}^2 \theta + \cot^2 \theta$
- D $\sin \theta + \cos \theta$

Answer: A

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Question 20

Complex carbohydrates which make up cell wall in plants are called?

- A Sucrose
- B Cellulose
- C Lactose
- D Maltose

Answer: B

Question 21

In this question, a statement is given followed by three conclusions. Choose the conclusion(s) which best fit(s) logically.

Statement:

$$U = V < W \leq Z$$

Conclusions:

- I. $W > U$
- II. $Z > U$
- III. $Z < U$

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

Answer: C

Explanation:

From ,

Statement:

$$U = V < W \leq Z$$

we can say that

$W > U$ and $Z > U$ but Z less than U is not possible.

C is correct choice.

Question 22

In which of the following amendments of the Constitution of India was Delhi designated as National Capital Territory (NCT)?

- A 74th Amendment Act
- B 63rd Amendment Act
- C 69th Amendment Act
- D 76th Amendment Act

Answer: C

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Question 23

A homologous series is a series of carbon compounds that has?A)The same number of carbon atoms but contain different functional group

- A The same number of carbon atoms but contain different functional group
- B Different number of carbon atoms but contain the same functional group
- C The same numbers of carbon atoms and contain the same functional group
- D Different number of carbon atoms and contain the different functional group

Answer: B

Question 24

What is 1 Dioptr equal to?

- A $1 m^{-1}$
- B $1 mm^{-1}$
- C $1 dm^{-1}$
- D $1 cm^{-1}$

Answer: A

Question 25

A continuous conducting path consisting of wires and other resistances, a switch, terminals of a cell along which the current flows is called?

- A Connection
- B Path
- C Loop
- D Circuit

Answer: D

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Question 26

In $\triangle ABC$ $\angle B = 90^\circ$ $AB=5\text{cm}$. Construction of $\triangle ABC$ is not possible if $AC - BC=?$

- A 4
- B 4.8
- C 6.5
- D 2.5

Answer: C

Explanation:

According to question,

$$AB^2 + BC^2 = AC^2.$$

$$\text{or, } 5^2 + BC^2 = AC^2.$$

$$\text{or, } AC^2 - BC^2 = 25.$$

So, if $AC-BC=6.5$ the, $AC+BC=3.84$ which violates the rule of triangle.

So, C is correct choice.

Question 27

Complete the series. 5, 7, 25, 49, 125, (...)

- A 245
- B 346
- C 343
- D 625

Answer: C

Explanation:

it's an alternate series of 5 and 7 in following pattern,

$$5, 5^2 = 25, 5^3 = 125, \dots$$

and

$$7, 7^2 = 49, 7^3 = 343, \dots$$

C is correct choice.

Question 28

Who among the following won the Men's 1500 metres race in the Jakarta Asian Games 2018?

- A Jinson Johnson
- B Neeraj Chopra
- C Tejinderpal Singh Toor
- D Manjit Singh

Answer: A

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Question 29

A father has a 12 year old son. He was thrice his son's present age when the son was born. How old is the father now?

- A 40 years
- B 46 years
- C 48 years
- D 60 years

Answer: C

Explanation:

According to question ,

When son born, father's age was= $12 \times 3 = 36$.

Now, father's age is= $36 + 12 = 48$.

C is correct choice.

Question 30

Which of the following parts are cleaned using ultrasound?

- A Easy to reach parts
- B Big parts
- C Hard to reach parts
- D Simple parts

Answer: C

Question 31

Water exists as _____ in its solid state.

- A Ice
- B Clouds
- C Foam
- D Steam

Answer: A

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Question 32

A pipe P can drain out water from a tank in 20 hours. Another pipe Q can drain 20 litres per hour. If both drains are opened, the tank is emptied in 12 hours. What is the capacity of the tank?

- A 800 litres

- B 600 litres
- C 400 litres
- D 650 litres

Answer: C

Explanation:

Let say, P drains out x ltrs in 20 hours.

So, in 1 hour P drains out $\frac{x}{20}$ ltrs.

or, in 12 hours P drains out $\frac{12x}{20}$ ltrs = $\frac{3x}{5}$ ltrs.

In 12 hours Q drains out = $12 \times 20 = 240$ ltrs.

So, $\frac{3x}{5} = 240$.

or, $x = 240 \times \frac{5}{3} = 400$.

C is correct choice.

Question 33

Which of the following diseases is NOT immunised by triple antigen?

- A Whooping cough
- B Typhoid
- C Diphtheria
- D Tetanus

Answer: B

Question 34

Which of the following is a milk protein?

- A Galactose
- B Caesin
- C Glycine
- D Rennin

Answer: B

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Question 35

Which of the following ratios is the largest?

- A 3 : 5
- B 5 : 7
- C 2 : 3
- D 3 : 4

Answer: D

Explanation:

$$3 : 5 = 0.60.$$

$$5 : 7 = 0.7142.$$

$$2 : 3 = 0.6666.$$

$$3 : 4 = 0.75.$$

D is correct choice.

Question 36

Which word will best complete the relationship given below? Fire : Ashes :: Explosion : ?

- A Debris
- B Explosive
- C Flame
- D Sound

Answer: A

Question 37

$(2^{25} + 2^{26} + 2^{27} + 2^{28})$ is a multiple of which of the following numbers?

- A 7
- B 15
- C 11
- D 19

Answer: B

Explanation:

$$\begin{aligned} & 2^{25} + 2^{26} + 2^{27} + 2^{28} \\ &= 2^{25} (1 + 2 + 2^2 + 2^3) . \\ &= 2^{25} (1 + 2 + 4 + 8) . \\ &= 2^{25} \times 15. \end{aligned}$$

So, it is divisible by 15 .

B is correct choice.

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Question 38

If D = 4 and COVER = 63, then BASIS = ?

- A 40
- B 60
- C 50

D 30

Answer: C

Explanation:

Conversion Table

A = 1	K = 11	U = 21
B = 2	L = 12	V = 22
C = 3	M = 13	W = 23
D = 4	N = 14	X = 24
E = 5	O = 15	Y = 25
F = 6	P = 16	Z = 26
G = 7	Q = 17	
H = 8	R = 18	
I = 9	S = 19	
J = 10	T = 20	

D=4 and COVER=3+15+22+5+18=63.

So, BASIS=2+1+19+9+19=50.

C is correct choice.

Question 39

Which of the following is NOT a ozone depleting substance?

- A Methyl bromide
- B Halon
- C Sodium silicate
- D Methyl chloroform

Answer: C

Question 40

If south becomes south east and north east becomes north and so on. What will be the south west and west become?

- A South and south west
- B West and east
- C East and north east
- D North and north west

Answer: A

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Question 41

Three of the following four of alphabets and numerals have the same relationship between their elements as in the case of the pair PRIVATE : 8732465 and hence form a group. Which of the following does not belong to the group?

- A VIPER : 23857
- B TAPER : 64852
- C PAVER : 84257
- D PRATE : 87465

Answer: B

Explanation:

PRIVATE : 8732465 implies that :

P=8, R=7, I=3, V=2, A=4, T=6 and E=5.

So,

VIPER : 23857 , PAVER : 84257, PRATE : 87465 ,

But , TAPER = 64857

So, B is correct choice.

Question 42

In which parts of the plant photosynthesis takes place?

- A Leaf and other chloroplast bearing parts
- B Roots and root sap
- C Branches and trunk
- D Leaf and stem

Answer: A

Question 43

The path followed by a projectile is called its -

- A Treasury
- B Translatory
- C Trajectory
- D Territory

Answer: C

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Question 44

What is the minimum voting age for women in India?

- A Eighteen
- B Twenty-two
- C Twenty-on
- D Sixteen

Answer: A

Question 45

Which of the following countries was the host of FIFA World Cup 2018?

- A Belgium

- B Russia
- C Spain
- D Denmark

Answer: B

Question 46

Which of the following does NOT change when a chemical reaction take place?

- A Physical properties
- B Chemical properties
- C Volume
- D Mass

Answer: D

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Question 47

_____ has been awarded with the Padma Bhushan award in 2019.

- A Dr. Bhupen Hazarika
- B Pranab Mukherjee
- C Ashok Laxmanrao Kukade
- D Balwant Moreswar Purandare

Answer: C

Question 48

If 12 men and 6 boys can do a work in 4 days and 4 men and 14 boys can do the same work in 8 days, find the ratio of efficiency of a man to that of a boy.

- A 2 : 11
- B 2 : 5
- C 3 : 7
- D 11 : 2

Answer: D

Explanation:

According to question,

$$(12m + 6b) \times 4 = (4m + 14b) \times 8.$$

$$\text{or, } (12m + 6b) = (4m + 14b) \times 2$$

$$\text{or, } 12m + 6b = 8m + 28b.$$

$$\text{or, } 4m = 22b.$$

$$\frac{m}{4} = \frac{22}{4} = \frac{11}{2}$$

So, D is correct choice.

Question 49

Pepsin is an enzyme secreted in the?

- A Liver
- B Mouth
- C Kidney
- D Stomach

Answer: D

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Question 50

Find the ODD one out from the given options.

- A Nose
- B Eye
- C Ear
- D Heart

Answer: D

Question 51

Which of these sets of numbers are in continued proportion?

- (i) 0.4, 3.6, 3.24
- (ii) 7, 21, 63
- (iii) 2.4, 9.6, 38.4

- A (ii) only
- B (i) and (ii)
- C (ii) and (iii)
- D (i), (ii) and (iii)

Answer: C

Question 52

Which day was observed as 'Swaraj Day' in Indian history?

- A January 26, 1950
- B January 26, 1930
- C August 14, 1947
- D August 15, 1947

Answer: B

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Question 53

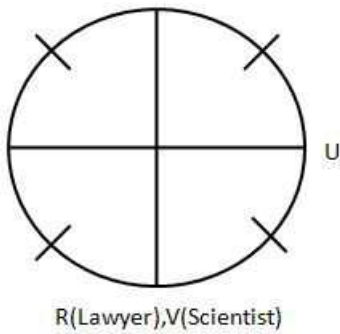
Read the following information carefully and answer the question given below.

J, P, Q, R, S, T, U and V are 4 married couples sitting in a circle facing the center. The professions of the males within the group are Lecturer, Lawyer, Doctor and Scientist. Among the males R (the Lawyer) and V (the Scientist) are sitting together. Each man is seated beside to his wife. U, the wife of the Lecturer is seated second to the right of V, and T is seated between U and V. P, the wife of the Doctor, is seated to the immediate left of the Lawyer's wife. Q is not the doctor. S is a male, and J is a female. Who sits between V and J?

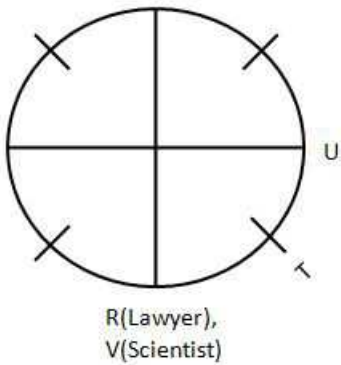
- A Q
- B R
- C U
- D T

Answer: B

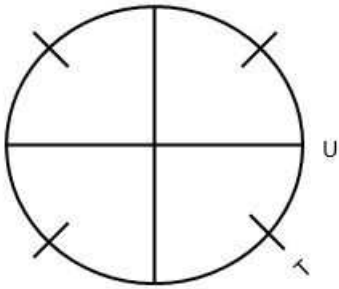
Explanation:



Among the males R (the Lawyer) and V (the Scientist) are sitting together. Each man is seated beside to his wife. U, the wife of the Lecturer is seated second to the right of V. So, Lecture should be on either left or right side of U.

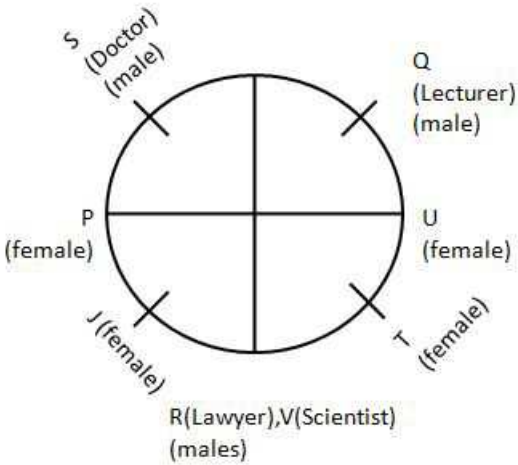


T is seated between U and V.



R(Lawyer),
V(Scientist)
(males)

P, the wife of the Doctor, is seated to the immediate left of the Lawyer's wife. So, Lawyer's wife can not be seat with T as R and V is already seat on the left of T. So, P should be on two sit away of left of R and V.



Q is not the doctor. S is a male, and J is a female.

So, Between V and J, R is seated.

B is correct choice.

Question 54

Read the following information carefully and answer the question given below.

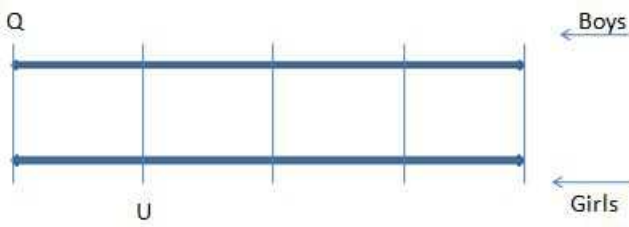
Six boys—M, N, O, P, Q, R and six girls—U, V, W, X, Y, Z are standing in rows in such a way that each girl faces one boy, not necessarily in the same order. U is to the immediate right of the girl who is facing Q the boy at the extreme right. Only N is between P and Q. R is to the immediate left of M and to the immediate right of O. W is facing M and is to the immediate left of V. Z is third to the left of X.

Which of the following girls is facing P?

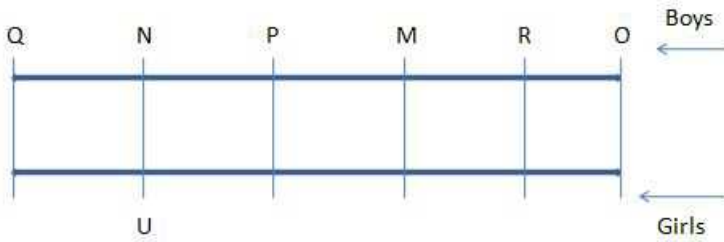
- A X
- B Y
- C Z
- D V

Answer: C

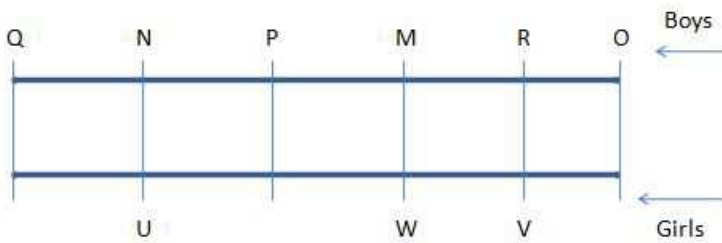
Explanation:



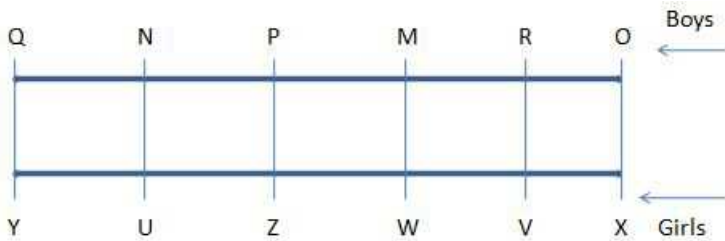
U is to the immediate right of the girl who is facing Q the boy at the extreme right.



Only N is between P and Q. R is to the immediate left of M and to the immediate right of O.



W is facing M and is to the immediate left of V.



Z is third to the left of X.

So, Z is facing P.

C is correct choice.

Question 55

Find the missing numbers in the following series. 2, 7, 23, (...), 220

A 72

B 46

C 70

D 21

Answer: A

Explanation:

$$2 \times 3 + 1 = 7, 7 \times 3 + 2 = 23, 23 \times 3 + 3 = 72, 72 \times 3 + 4 = 220.$$

So, A is correct choice.

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Question 56

A watch reads 4:30. If the minute hand points east, in what direction will the hour hand point?

A South east

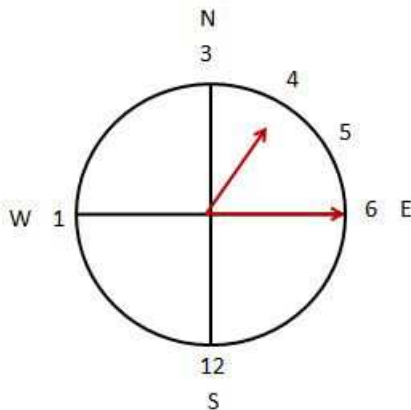
B North west

C North east

D North

Answer: C

Explanation:



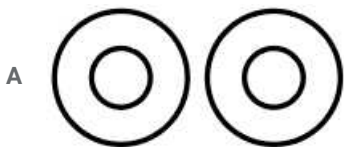
If minute hand in 4:30 ,minute hand in East side , then hour hand should be in North-East.

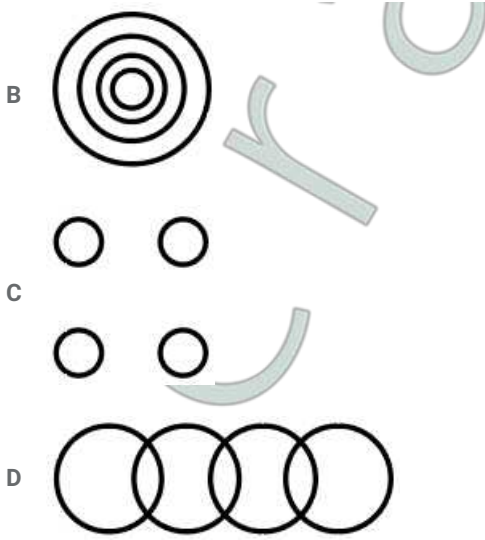
C is correct choice.

Question 57

Choose the figure that best represents the relationship among the classes given below ?

Keyboard, Monitor, Mouse, Scanner





Answer: C

Question 58

With which of the following sports is Sania Mirza associated?

- A Tennis
- B Swimming
- C Boxing
- D Cricket

Answer: A

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Question 59

A sum of money lent out at a certain rate of compound interest compounded annually amount to Rs.1260 in 2 years and to Rs 1606 in 3 years.find the rate of interest

- A 27 %
- B 12 %
- C 11 %
- D 8 %

Answer: A

Explanation:

According to question,

$$P \left(1 + \frac{r}{100}\right)^2 = 1260 \text{ and } P \left(1 + \frac{r}{100}\right)^3 = 1606.$$

$$\text{So, } P \left(1 + \frac{r}{100}\right)^3 = \frac{1606}{1260} = 1.2746.$$

$$\text{or, } \left(1 + \frac{r}{100}\right) = 1.2746.$$

$$\text{or, } r = 27.46.$$

A is correct choice.

Question 60

_____ is an aperture which controls light passage in the eye.

- A Sclerotic coat
- B Pupil
- C Iris
- D Blind Spot

Answer: B

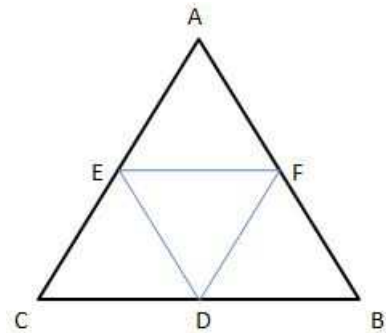
Question 61

D, E, F are midpoints of the sides BC, CA, AB of a ΔABC . If area of ΔABC is 20 cm^2 , then find area of the trapezium FBCE.

- A 12 cm^2
- B 15 cm^2
- C 10 cm^2
- D 5 cm^2

Answer: B

Explanation:



Area of $\Delta ABC = 20 \text{ cm}^2$.

But, D, E and F are mid points of side BC, AC and AB.

So, Area of $\Delta AEF = \Delta CED = \Delta DFB = \Delta DEF$.

So, Area of $\Delta AEF = \frac{20}{4} \text{ cm}^2 = 5 \text{ cm}^2$.

So, Area of trapezium $FBCE = (5 + 5 + 5) = 15 \text{ cm}^2$.

B is correct choice.

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Question 62

If '+' means 'x', '-' means '+', 'x' means '÷' and '÷' means '-', then, $8 \times 4 - 6 \div 3 + 1 = ?$

- A -1
- B 4
- C 2

D 5

Answer: D

Explanation:

After rearranging,

$$8 \div 4 + 6 - 3 \times 1$$

$$= 2 + 6 - 3 \times 1$$

$$= 2 + 6 - 3$$

$$= 8 - 3$$

$$= 5.$$

D is correct choice.

Question 63

Which least number when divided by 12, 15, 20 and 54 leaves a remainder 8 in each case?

A 532

B 556

C 548

D 540

Answer: C

Explanation:

LCM of 12, 15, 20, 54

$$12 = 2 \times 2 \times 3$$

$$15 = 3 \times 5$$

$$20 = 2 \times 2 \times 5$$

$$54 = 2 \times 3 \times 3 \times 3$$

$$\text{LCM} = 27 \times 4 \times 5 = 27 \times 20$$

$$= 540$$

ADD 8

$$= 540 + 8 = 548$$

So, C is correct choice.

Question 64

'Drag' is the name given to frictional forces exerted by what?

A Gel

B Chemicals

C Resins

D Fluids

Answer: D

Question 65

A grandfather and his granddaughter have their ages in the ratio 9 : 2. Sum of their ages is a perfect square. The difference in their ages is a multiple of 11. What are their ages?

- A 99, 22
- B 72, 16
- C 90, 20
- D 95, 25

Answer: A

Explanation:

Let say, grandfather and his granddaughter's ages are $9x$ and $2x$.

So,

$$9x + 2x = k^2. \text{ (} k^2 \text{ is a perfect square term)}$$

$$\text{or, } 11x = k^2.$$

And,

$$9x - 2x = 11m. \text{ (} 11m \text{ is a multiple of 11)}$$

$$\text{or, } 7x = 11m.$$

$$\text{or, } x = \frac{11m}{7}.$$

$$\text{So, } \frac{11 \times 11m}{7} = k^2.$$

So, k would be a perfect square when $m=7, 28, 63, \dots$

But, from the choice we can say that $m=7$,

$$\text{then } \frac{11 \times 11 \times 7}{7} = k^2.$$

$$\text{or, } k = 11.$$

$$\text{So, } x = 11.$$

So, their ages were 99 and 22.

A is correct choice.

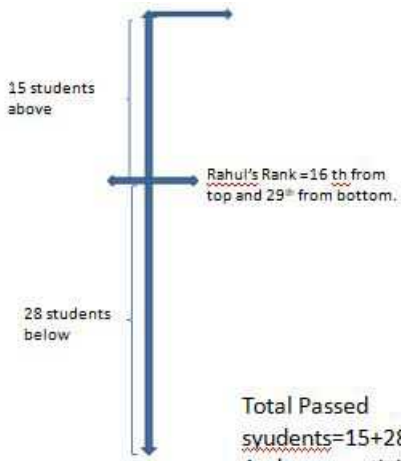
Question 66

Rahul ranked 16th from the top and 29th from the bottom among those who passed the examination. Six boys did not participate in the examination and five failed. How many boys were there in the class?

- A 40
- B 55
- C 49
- D 50

Answer: B

Explanation:



Total Passed
 students = $15 + 28 + 1 = 44$.
 And non-participate
 students = 6 and failed = 5.
 Total number of
 students = $44 + 6 + 5 = 55$.
 So, B is correct choice.

Question 67

Number of valence electrons in Cl^- ion is:

- A 16
- B 18
- C 8
- D 17

Answer: C

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Question 68

Complete the series. 2, 5, 10, 17, (...)

- A 26
- B 29
- C 27
- D 21

Answer: A

Explanation:

$$1^2 + 1 = 2, 2^2 + 1 = 5, 3^2 + 1 = 10, 4^2 + 1 = 17, 5^2 + 1 = 26.$$

So A is correct choice.

Question 69

Does the mass of an object vary from place to place?

- A It varies in high altitudes
- B It varies in poles alone

C No, it is constant in all places

D It varies in hot places alone

Answer: C

Question 70

Pipe P is twice as fast as Q, and Q is twice as fast as R. Find the ratio of the time taken by P, Q and R to fill a cistern.

A 4 : 2 : 1

B 2 : 1 : 4

C 4 : 1 : 2

D 1 : 2 : 4

Answer: D

Explanation:

According to question,

$$2R_{speed} = Q_{speed} \text{ and } P_{speed} = 2Q_{speed} = 4R_{speed}.$$

$$\text{So, } P_{time} : Q_{time} : R_{time} = \frac{1}{P_{speed}} : \frac{1}{Q_{speed}} : \frac{1}{R_{speed}}$$

$$= \frac{1}{4R_{speed}} : \frac{1}{2R_{speed}} : \frac{1}{R_{speed}} = \frac{1}{4} : \frac{1}{2} : 1 = 1 : 2 : 4.$$

D is correct choice.

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Question 71

What is the pH of lemon juice?

A 9

B 7

C 2.2

D 5.4

Answer: C

Question 72

Two varieties of tomatoes are bought in the ratio 2 : 3, where the price of first variety is twice that of the second. The varieties are mixed and sold at Rs.17.50 per kg, resulting in a profit of 25%. Find the costs of the two varieties before selling.

A Rs.22, Rs.11

B Rs.20, Rs.10

C Rs.24, Rs.12

D Rs.12, Rs.6

Answer: B

Explanation:

Let say, first quality and second quality of tomato bought are $2k$ and $3k$.

And price of first quality and second quality are $2x$ per kg and x per kg.

Total cost price of first quality= $4kx$ and second quality= $3kx$.

$$\text{per kg price} = \frac{(4kx+3kx)}{(2k+3k)} = \frac{7kx}{5k} = 1.4x.$$

So,

$$1.4x \times 1.25 = 17.50.$$

$$\text{or, } x = \frac{17.50}{1.4 \times 1.25} = 10.$$

So, before selling their cost price was 20 and 10 Rs.

B is correct choice.

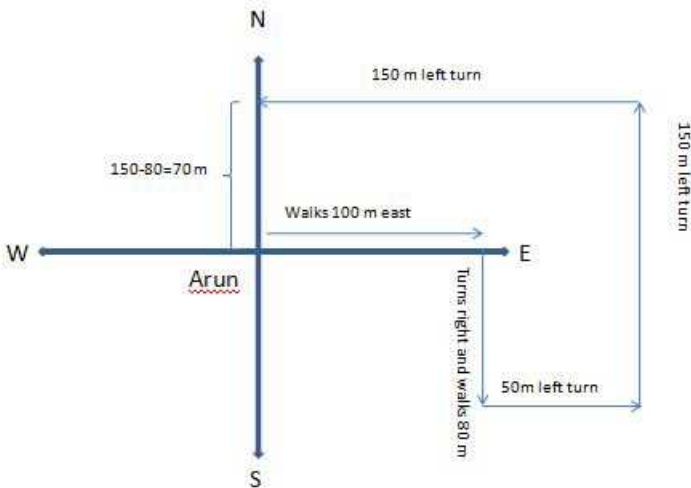
Question 73

Arul walks 100 m towards east and then 80 m to his right. Then, every time turning to his left, he walks 50, 150 and 150 m, respectively. How far and in which direction is he now from the starting point?

- A 70 m, south
- B 80 m, north
- C 70 m, north
- D 100 m, north

Answer: C

Explanation:



So, He is 70m in north. C is correct choice.

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Question 74

If the volume of a sphere is divided by its surface area, the result is 27 cm. Find the radius of the sphere

- A 81 cm
- B 9 cm

C 243 cm

D 27 cm

Answer: A

Explanation:

Let say ,radius of sphere= r.

According to question,

$$\frac{4}{3} \pi r^3 = 27.$$

$$\text{or, } r = 27 \times \frac{3}{4} = 81.$$

A is correct choice.

Question 75

Weight of an object is directly proportional to its?

A Translucency

B Mass

C Specific heat capacity

D Magnetic power

Answer: B

Question 76

Where is Diffo Bridge located which was recently inaugurated?

A Arunachal Pradesh

B Andhra Pradesh

C Maharashtra

D Karnataka

Answer: A

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Question 77

If $0.034 = \frac{x}{10}$, find the value of 'x'.

A 340

B 34

C 3.4

D 0.34

Answer: D

Explanation:

$$0.034 = \frac{x}{10}$$

So, $0.034 \times 10 = x$

or, $x = 0.34$.

D is correct choice.

Question 78

The amount of sound energy passing each second through unit area is called?

- A Intensity
- B Pitch
- C Note
- D Music

Answer: A

Question 79

If '+' means 'x', '-' means '+', 'x' means '÷' and '÷' means '-', then, $3 \times 2 + 4 - 2 \div 9 = ?$

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

Answer: D

Explanation:

By rearranging the equation,

$$3 \div 2 \times 4 + 2 - 9$$

$$= 1.5 \times 4 + 2 - 9$$

$$= 6 + 2 - 9$$

$$= 8 - 9$$

$$= -1.$$

D is correct choice.

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Question 80

What is a variable resistance used in a circuit usually operated by a sliding contact on a long coil of resistance called?

- A Cell
- B Rheostat
- C Switch
- D Resistor

Answer: B

Question 81

Loss of water from the leaves of a plant through stomata is called -

- A Suspiration
- B Perspiration
- C Transpiration
- D Expiration

Answer: C

Question 82

If 351 means 'students like maths'; 197 means 'we are students' and 748 means 'they are parents', what is code for the word 'we'?

- A 1
- B 9
- C 7
- D 8

Answer: B

Explanation:

351 == 'students like maths'

197 == 'we are students',

So, Students= 1.

748 == 'they are parents',

So, Are= 7. Then, We=9.

B is correct choice.

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Question 83

Which of the following is the greatest?

- A $\frac{19}{20}$
- B $\frac{15}{16}$
- C $\frac{24}{25}$
- D $\frac{34}{35}$

Answer: D

Explanation:

$\frac{19}{20} = 0.95.$

$\frac{15}{16} = 0.9375.$

$\frac{24}{25} = 0.96.$

and $\frac{34}{35} = 0.9714$.

So, D is correct choice.

Question 84

Complete the series. 20, 32, 45, 59, 74, (...)

- A 90
- B 79
- C 95
- D 85

Answer: A

Explanation:

$20 + 12 = 32$, $32 + 13 = 45$, $45 + 14 = 59$, $59 + 15 = 74$, $74 + 16 = 90$.

A is correct choice.

Question 85

If Rs.750 amounts to Rs.1000 in 5 years, then what will it amount to in 10 years at Simple Interest?

- A Rs.1500
- B Rs.1250
- C Rs.1750
- D Rs.2000

Answer: B

Explanation:

Let say, rate of interest= r %.

So,

$$750 \left(1 + \frac{5 \times r}{100}\right) = 1000.$$

$$\text{or, } 1 + \frac{5 \times r}{100} = \frac{1000}{750} = 1.3333.$$

$$\text{or, } \frac{5 \times r}{100} = \frac{1}{3}.$$

$$\text{or, } r = \frac{20}{3}.$$

$$\text{So, Amount will become in 10 years} = 750 \left(1 + \frac{10 \times \frac{20}{3}}{100}\right) = 750 \times \left(\frac{5}{3}\right) = 1250.$$

B is correct choice.

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Question 86

In which of the following cities is the Indian Institute of Petroleum situated?

- A Kandla
- B Dehradun
- C Visakhapatnam

D Kochi

Answer: B

Question 87

Which of the following vitamins helps in normal clotting of blood in human beings?

A Vitamin A

B Vitamin K

C Vitamin D

D Vitamin C

Answer: B

Question 88

How many electrons are there in the outermost shell of carbon?

A 6

B 3

C 4

D 5

Answer: C

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Question 89

A and B take part in a 100 m race. A runs at 5 km/hr. A gives B a start of 8 m and still beats him by 8 seconds. Find the speed of B.

A 4.14 km/hr

B 4.20 km/hr

C 5.15 km/hr

D 4.25 km/hr

Answer: A

Explanation:

$$\text{A's speed} = \left(5 \times \frac{5}{18}\right) m/\text{sec} = \frac{25}{18} m/\text{sec}.$$

$$\text{Time taken by A to cover 100 m} = \left(100 \times \frac{18}{25}\right) \text{sec} = 72 \text{sec}.$$

$$\text{Time taken by B to cover 92 m} = (72 + 8) = 80 \text{sec}.$$

$$\text{B's speed} = \frac{92}{80} \times \frac{18}{5} \text{ kmph} = 4.14 \text{ kmph}.$$

A is correct choice.

Question 90

The unique property of carbon to form bonds with other atoms giving rise to large molecules is known as?

- A Induction
- B Malleability
- C Catenation
- D Ductility

Answer: C

Question 91

The traditional harvesting festival celebrated in Assam is?

- A Tusu Parab
- B Bohag Bihu
- C Makar Sankranti
- D)Pongal

Answer: B

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Question 92

Two successive discounts on the labelled price of Rs.6000 reduces the sale price to _____, if the discounts are 10% and 20% successively.

- A Rs.4230
- B Rs.4000
- C Rs.4320
- D Rs.4200

Answer: C

Explanation:

After two successive discount of 10% and 20% on 6000 Rs. ,the price will become= $6000 \times 0.90 \times 0.80 = 4320 \text{ Rs.}$

C is correct choice.

Question 93

Choose the pair in which the words show the same relationship as in the pair given below.Face : Eye

- A Book : Copy
- B Boat : Sky
- C Head : Hair
- D Shirt : Pant

Answer: C

Explanation:

Eye is an organ that is part of Face.

Similarly, Hair is part of Head.

C is correct choice.

Question 94

On selling 17 balls at Rs.720, there is a loss equal to the cost of 5 balls. What is the cost price of a ball?

- A 40
- B 45
- C 55
- D 60

Answer: D

Explanation:

Let say , the cost of one ball is c .

So, the cost of 17 balls= $17c$.

So, Loss= $17c-720$.

Cost of 5 balls = $5c$.

So,

$$17c - 720 = 5c.$$

$$\text{or, } 12c = 720.$$

$$\text{or, } c = 60.$$

D is correct choice.

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Question 95

In Global Innovation Index rankings 2017, India has secured the _____ position.

- A 40th
- B 60th
- C 70th
- D 50th

Answer: B

Question 96

Find the largest number that will divide exactly the product of four consecutive integers.

- A 24
- B 12
- C 6
- D 8

Answer: A

Explanation:

As the smallest product of any 4 consecutive natural numbers is 24, $(1 \times 2 \times 3 \times 4)$. So we need to find the largest number, which divides $(1 \times 2 \times 3 \times 4)$ And that is 24.

Rest all products of any 4 consecutive natural numbers, which include 2 odds & 2 evens, have $(2^3 \times 3)$ as their factors.

Hence, 24 is the largest natural number which divides the product of any 4 consecutive natural numbers.

A is correct choice.

Question 97

If the numerator of a fraction is increased by 100% and the denominator is increased by 150%, then the fraction becomes $16/25$. What is the original fraction?

A $\frac{5}{6}$

B $\frac{5}{12}$

C $\frac{4}{5}$

D $\frac{7}{12}$

Answer: C

Explanation:

Let say the fraction is $\frac{x}{y}$.

According to question,

$$x + \frac{100}{100}x = \frac{16}{y + 150\%y} = \frac{16}{2.5y}$$

$$\text{or, } 2.5x = \frac{16}{2.5y}$$

$$\text{or, } y = \frac{16}{2.5} \times \frac{2.5}{2} = \frac{8}{1} = 8$$

C is correct choice.

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Question 98

Jhelum, Chenab, Ravi, Beas and Sutlej are the tributaries of?

A Brahmaputra

B Yamuna

C The Indus

D Ganga

Answer: C

Question 99

The top of pistil in a flower is termed as?

A Stigma

B Pollen

C Ovule

D Stamen

Answer: A

Question 100

Find the CORRECT statement(s).

(i) Like fractions have the same numerator.

(ii) If the numerator and denominator are coprime, the fraction is in its simplest form.

(iii) Fractions cannot be compared.

A Statement (ii) only

B Statements (ii) and (iv) only

C Statement (iii) only

D Statement (i) only

Answer: B

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