

**RRB JE**  
**2nd June 2019**  
**Shift-1**

**Instructions**

For the following questions answer them individually

**Question 1**

**Muscle fatigue occurs due to accumulation of -**

- A CO
- B Carbon dioxide
- C Creatine phosphate
- D Lactic acid

**Answer: D**

**Question 2**

**A triangular prism has a triangle base with sides 8, 15, 17 units and height 20 units. Its total surface area is:**

- A 960
- B 940
- C 920
- D 1020

**Answer: C**

**Explanation:**

A triangular prism has 5 faces:

2 triangular faces and 3 rectangular faces.

Surface area of a prism:

= Area of the 2 triangle of the prism + area of the 3 lateral rectangular parts

Area of the 2 triangle of the prism:

Triangle with sides 8, 15 and 17 units is a right-angled triangle with the height of 15 units.

Area of the 2 triangles =  $1/2 \times bh \times 2$

$$= 1/2 \times 8 \times 15 \times 2$$

$$= 120$$

Surface area of the 2 triangular parts is 120 units<sup>2</sup>

Area of the 3 lateral rectangular parts:

The rectangles have area of:

8 units by 20 units, 15 by 20 units and 17 by 20 units.

Area of the rectangular parts:

$$(8 \times 20) + (15 \times 20) + (17 \times 20)$$

$$= 160 + 300 + 340$$

$$= 800 \text{ units}^2$$

The total area of the triangular prism thus is:

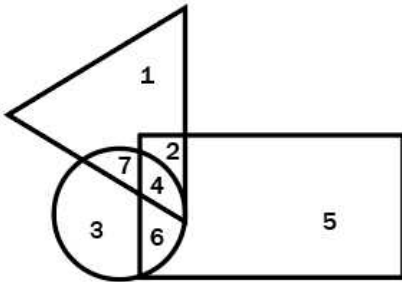
$$120 \text{ units}^2 + 800 \text{ units}^2 = 920 \text{ units}^2$$

Total surface area of the triangular prism = 920 units<sup>2</sup>

C is correct choice.

### Question 3

In the given figure, the circle represents Male, triangle represents Engineers and rectangle represents Doctors. which region represents both engineers and doctors but not male?



A 7

B 2

C 6

D 4

Answer: B

### Explanation:

Region 2 represents both engineers and doctors but not male.

B is correct choice.

### Question 4

With which of the following sports is the term 'Steeple chase' associated?

A Rowing

B Horse racing

C Polo

D Boxing

Answer: B

### Question 5

After selling 30% of the fruits, a fruit seller had 140 fruits left. How many were there originally?

A 288

B 350

C 300

D 200

Answer: D

**Explanation:**

According to question, 70% of total fruits = 140 fruits.

$$\text{So, Total number fruits} = \frac{140}{70} \times 100 = 200.$$

D is correct choice.

**Question 6**

Since sound wave is a disturbance, which moves in the medium by setting the neighbouring particles into motion, they are categorised in which wave category?

- A Electromagnetic waves
- B Microwaves
- C Mechanical waves
- D Radio waves

**Answer:** C

**Question 7**

The inertia of an object tends to cause the object to?

- A Decelerate due to friction
- B Increase its speed
- C Decrease its speed
- D Resist any change in its state of motion

**Answer:** D

**Question 8**

Two pipes can fill a tank in 20 and 24 minutes respectively. There is an outlet in the tank that can empty it at 3 gallons per minute. If all the pipes are opened, the tank gets filled in 15 minutes. Find the capacity of the tank.

- A 120 gallons
- B 108 gallons
- C 80 gallons
- D 150 gallons

**Answer:** A

**Explanation:**

Let say, the capacity of tank is =  $x$  ltr.

First pipe :

$$\text{it can fill in 15 min} = \frac{15x}{20} \text{ ltr.}$$

Second pipe :

$$\text{it can fill in 15 min} = \frac{15x}{24} \text{ ltr.}$$

Last pipe :

it can empty in 15 min =  $3 \times 15 \text{ ltr} = 45 \text{ ltr}$ .

So,

$$\frac{15x}{20} + \frac{15x}{24} - 45 = x .$$

$$\text{or, } \frac{15x}{20} + \frac{15x}{24} - x = 45.$$

$$\text{or, } \frac{90x+75x-120x}{120} = 45.$$

$$\text{or, } \frac{45x}{120} = 45.$$

$$\text{or, } x = 120.$$

A is correct choice.

#### Question 9

What is the commercial unit of electrical energy consumed?

- A Kilowatt hour (kWh)
- B Watt (W)
- C Volt (V)
- D Joule (J)

Answer: A

#### Question 10

What is the colour of sunlight when scattered by the air molecules in the atmosphere?

- A White
- B VIBGYOR
- C Blue
- D Red

Answer: C

#### Question 11

In this question, two statements are given followed by two conclusions. Choose the conclusion(s) which best fit(s) logically.

Statements:

1. All worms are mosquitoes.
2. All mosquitoes are birds.

Conclusions:

- I. All mosquitoes are worms.
- II. All worms are birds.

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

D Either conclusion I or II follows

**Answer: A**

**Explanation:**

Statements:

1. All worms are mosquitoes.
2. All mosquitoes are birds.

From statement 1 we can say that some mosquitoes are worms.

and from statement 2 we can say that all worms are definitely birds .

So, conclusion II is correct only.

A is correct choice.

**Question 12**

**Two cans of milk contain 25% water and 50% water respectively. How much milk must be taken from the two cans to get 12 litres of milk so that it will contain water and milk in the ratio 3 : 5?**

A 6 litres, 6 litres

B 4 litres, 8 litres

C 3 litres, 9 litres

D )5 litres, 7 litres

**Answer: A**

**Explanation:**

Let say ,x ltr taken from first can and y ltr taken second can.

So,  $x+y=12$ .....(1)

And, milk in first can = $0.75x$  and water= $0.25x$ .

in second can ,milk= $0.50y$  and water= $0.50y$ .

So,  $(0.75x+0.50y)/(0.25x+0.50y)=5/3$ .

or, $2.25x+1.5y=1.25x+2.5y$

or, $x=y$ .

So, $2x=2y=12$ .

or, $x=y=6$ .

A is correct choice.

**Question 13**

**If 'M' means '÷', 'R' means '+', 'T' means '-', and 'K' means 'x', then,  $20 R 16 K 5 M 10 T 8 = ?$**

A 36

B 32

C 20

D 12

**Answer: C**

**Explanation:**

After rearrangement,

$20+16 \times 5 \div 10-8$

$$=20+16\times 0.5-8$$

$$=20+8-8$$

$$=28-8$$

$$=20.$$

C is correct choice.

#### Question 14

When sulphuric acid is poured over zinc, which of the following gases is formed?

- A Sulphur dioxide
- B Hydrogen
- C Oxygen
- D Zinc dioxide

Answer: B

#### Question 15

How many islands are there in Lakshadweep?

- A 20
- B 36
- C 26
- D 30

Answer: B

#### Question 16

Complete the series. 36, 31, 29, 24, 22, (...)

- A 16
- B 17
- C 15
- D 13

Answer: B

#### Question 17

A discount of 15% on one article is the same as a discount of 20% on another article. Find the cost price of the two articles.

- A Rs.80, Rs.60
- B Rs.60, Rs.40

C Rs.40, Rs.20

D Rs.70, Rs.50

**Answer: A**

**Explanation:**

According to the question,

$$0.15c_1 = 0.20c_2$$

or,  $c_1/c_2 = 20/15 = 4/3$ .

So,  $c_1 = 80$  &  $c_2 = 60$  is possible choice.

A is correct choice.

**Question 18**

**Which tissue in a plant carries water?**

A Stomata

B Xylem

C Phylum

D Chlorophyll

**Answer: B**

**Question 19**

**Which of the following is the best source of Omega-3 fatty acids?**

A Corn oil

B Sardines

C Wheat products

D Spinach

**Answer: B**

**Question 20**

**Find the odd one out from the given options**

A **W**

B **F**

C D

D B

Answer: A

**Explanation:**

B,D and F is 2 letters away from each other.

But W is different from the sequence.

A is correct choice.

**Question 21**

A thief escaped from the police and drove away in a bike at 100 km/h. The police immediately started chasing at 75 km/h. After an hour, there was an engine problem in the police vehicle which took 30 minutes to set it right. Thereafter, the speed of the vehicle picked up to 120 km/h. After how much time was the thief caught?

A 3 hours 40 minutes

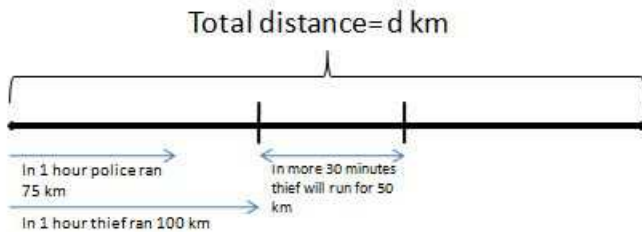
B 2 hours 30 minutes

C 5 hours 15 minutes

D 2 hours 45 minutes

Answer: C

**Explanation:**



Let say, from starting point thief is being caught at distance 'd' km.

So, Police covered  $(d-75)$  km at the speed of 120 km/h.

And, Thief covered  $(d-150)$  km at the speed of 100 km/h.

$$\text{So, } \frac{120}{100} = \frac{d-75}{d-150}.$$

$$\text{or, } 120d - 18000 = 100d - 7500.$$

$$\text{or, } 20d = 18000 - 7500 = 10500.$$

$$\text{or, } d = 525.$$

$$\text{So, Police caught thief after speed up in } = \frac{525-75}{120} \text{ hr} = \frac{450}{120} \text{ hr} = 3.75 \text{ hr}.$$

$$\text{So, Total time taken } = (3.75+1.5) \text{ hr} = 5.25 \text{ hr}.$$

C is correct choice.

**Question 22**

**Poliomyelitis is caused by?**



- A Fungus
- B Virus
- C Worms
- D Bacteria

**Answer: B**

**Question 23**

**Which of the following is used for dissolution of gold?**

- A Aqua-regia
- B Sodium hydroxide
- C Sulphuric acid
- D Ammonium hydroxide

**Answer: A**

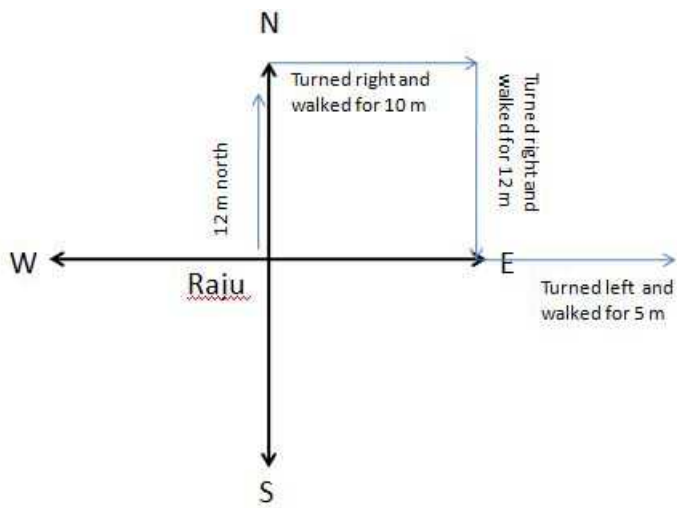
**Question 24**

**Starting from a point, Raju walked 12 m north, he turned right and walked 10 m, he again turned right and walked 12 m, then he turned left and walked 5 m. How far is he now and in which direction from the starting point?**

- A 5 m towards east
- B 27 m towards east
- C 10 m towards west
- D 15 m towards east

**Answer: D**

**Explanation:**



So, He will be on east side and  $10+5=15$  m away from starting point.  
D is correct choice.

**Question 25**

Simplify  $\frac{1+\cos\theta}{\sin\theta}$

- A  $\operatorname{cosec}\theta - \cot\theta$
- B  $\operatorname{cosec}\theta + \cot\theta$
- C  $\tan\theta - \sec\theta$
- D  $\tan\theta + \sec\theta$

**Answer:** B

**Explanation:**

$$\begin{aligned} & \frac{1+\cos\theta}{\sin\theta} \\ &= \frac{1}{\sin\theta} + \frac{\cos\theta}{\sin\theta} \\ &= \operatorname{cosec}\theta + \cot\theta. \end{aligned}$$

B is correct choice.

**Question 26**

If 'P' denotes '-', 'Q' denotes '÷', 'R' denotes 'x' and 'W' denotes '+', then  $48\ Q\ 12\ R\ 10\ P\ 8\ W\ 4$ ?

- A 32
- B 36
- C 28
- D 40

**Answer:** B

**Explanation:**

After rearrangement,

$$\begin{aligned} &48 \div 12 \times 10 - 8 + 4 \\ &= 4 \times 10 - 8 + 4 \\ &= 40 - 8 + 4 \\ &= 44 - 8 \\ &= 36. \end{aligned}$$

B is correct choice.

#### Question 27

The length of a room is 5.5 m and width is 3.75 m. Find the cost of paving the floor by slabs at the rate of Rs.800 per  $m^2$ .

- A Rs.15600
- B Rs.15550
- C Rs.16500
- D Rs.15000

**Answer: C**

#### Explanation:

So, area of room =  $5.5 \times 3.75 = 20.625 m^2$ .

So, cost of paving =  $20.625 \times 800 = 16500$  Rs.

C is correct choice.

#### Question 28

Find the value of  $\frac{1}{\sqrt{2} + \sqrt{3} - \sqrt{5}} + \frac{1}{\sqrt{2} - \sqrt{3} - \sqrt{5}}$

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

**Answer: A**

#### Question 29

Which is the smallest muscle in the human body?

- A Tibialis
- B Stapedius
- C Pectoralis
- D Heart

**Answer: B**

**Question 30**

Which of the chemical symbols is NOT correct?

- A Ag
- B Mg
- C Cu
- D AL

Answer: D

**Question 31**

The unsaturated hydrocarbons which contain one or more double bonds are called?

- A Alkenes
- B Alkynes
- C Alkanes
- D Alkali

Answer: A

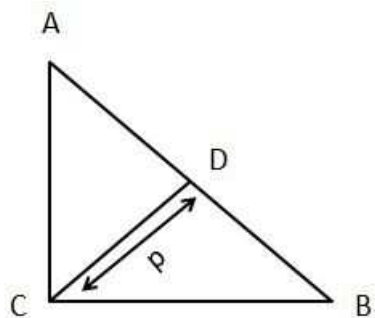
**Question 32**

$\triangle ABC$  is right angled at C. 'p' is the perpendicular from C to AB; AB, BC, CA are c, a, b respectively, then:

- A  $p^2 = ab/c$
- B  $pa = bc$
- C  $pc = ab$
- D  $pb = ac$

Answer: C

Explanation:



$\angle B$  is common and  $\angle BDC = \angle ACB = 90^\circ$

for  $\triangle ACB$  and  $\triangle BDC$ .

So,  $\triangle ACB \simeq \triangle BDC$ .

So,  $\frac{DC}{BC} = \frac{AC}{BA}$ .

$$\frac{p}{a} = \frac{b}{c}.$$

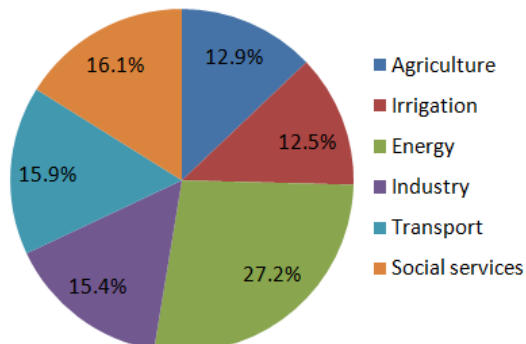
$$\text{or, } pc = ab.$$

C is correct choice.

### Question 33

Study the following pie chart and answer the questions given below it

The following pie chart represents the percentage distribution of different sectors



Find the angle subtended at center of the circle by the social services sector

- A  $70^\circ$
- B  $45^\circ$
- C  $46^\circ$
- D  $58^\circ$

Answer: D

**Explanation:**

$$100\% = 360^\circ.$$

$$\text{Social Services} = 16.1\%.$$

$$\text{So, Social Services} = \frac{360^\circ}{100} \times 16.1 = 57.96^\circ \approx 58^\circ.$$

D is correct choice.

### Question 34

Which of the following salts does NOT contain water of crystallisation?

- A Baking soda
- B Gypsum
- C Blue vitriol
- D Washing soda

Answer: A

### Question 35

The matter that CANNOT be broken down by chemical reactions into simpler substances is known as?

- A Pure substances

- B Mixtures
- C Compounds
- D Elements

Answer: D

**Question 36**

If in a certain language 'PEARL' is coded as 'SHDUO', how is 'COVET' coded in that language?

- A EQXHV
- B FRYHW
- C FNYDW
- D FRXHV

Answer: B

**Explanation:**

*PEARL* :  $P + 3 = S$ ,  $E + 3 = H$ ,  $A + 3 = D$ ,  $R + 3 = U$ ,  $L + 3 = O$ . : SHDUO.

Similarly, *COVET* :  $C + 3 = F$ ,  $O + 3 = R$ ,  $V + 3 = Y$ ,  $E + 3 = H$ ,  $T + 3 = W$ . : FRYHW.

B is correct choice.

**Question 37**

Which word will best complete the relationship given below? Face : Expression :: Hand : ?

- A Work
- B Gesture
- C Handshake
- D Painting

Answer: B

**Explanation:**

Face helps to give Expressions.

Similarly, Hand helps to give gestures.

B is correct choice.

**Question 38**

Find the missing group of alphabets in the following series. gfe\_\_ ig \_\_ eii\_\_fei\_\_ gf \_\_ ii

- A figie
- B ifgie
- C ifige
- D eifgi

Answer: B

### Question 39

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

**Statement:**

Men from country 'X' eat more and exercise less than they used to, and more and more of them are turning obese", says-a fitness expert.

**Conclusions:**

I. The metabolism rate of men in country 'X' is very low.

II. Exercising is not on the priority list for men in country X.

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

**Answer:** C

**Explanation:**

Statement:

Men from country 'X' eat more and exercise less than they used to, and more and more of them are turning obese", says-a fitness expert.

means that Exercise is not the priority for the men in country X.

So, C is correct choice.

### Question 40

Which of the following numbers is exactly divisible by 4?

- A 10012
- B 10006
- C 10002
- D 10010

**Answer:** A

**Explanation:**

A number is divisible by 4 ,if last 2 digit of that number is divisible by 4.

12 is exactly divisible by 4.

So, 10012 is divisible by 4.

A is correct choice.

### Question 41

In a certain code, 'REPORT' is written as 'PRETOR'. How is 'PERSON' written in that code?

- A RPENSO
- B RSONPE
- C NSREPO

D EOPNSR

Answer: A

**Explanation:**

'REPORT' is written as 'PRETOR' means that letter in 3rd position comes in 1st position and letter in 6th position comes in 3rd position.

Similarly, *PERSON = RPENSO*.

A is correct choice.

**Question 42**

The cost price of 20 tables is equal to the selling price of 'x' tables. If there is a profit of 25%, then what is the value of 'x'?

A 18

B 15

C 25

D 16

Answer: D

**Explanation:**

Let say, cost and selling price of each table is c and s.

So,

$$20c = xs.$$

$$\frac{20}{x} = \frac{s}{c}.$$

$$\text{or, } \frac{20-x}{x} = \frac{s-c}{c}.$$

According to question,

$$\frac{20-x}{x} = 0.25.$$

$$\text{or, } 20 = 1.25x.$$

$$\text{or, } x = \frac{20}{1.25} = 16.$$

D is correct choice.

**Question 43**

Which of the following metals is/are found free in nature?

A Both gold and platinum

B Copper

C Platinum

D Gold

Answer: A

**Question 44**

Which word will best complete the relationship given below? Mountain : Valley :: Enemy : ?

A Cruel



- B Friend
- C Country
- D Stranger

**Answer:** B

**Explanation:**

Mountain and Valley are opposite words.

Similarly, Enemy and Friend are opposite words.

B is correct choice.

**Question 45**

**Complete the series. 3, 2, 7, 6, 11, (...)**

- A 10
- B 2
- C 4
- D 8

**Answer:** A

**Question 46**

**Find the representation of prime factors of 240.**

- A  $2 \times 2 \times 2 \times 3 \times 5$
- B  $2 \times 2 \times 2 \times 2 \times 5$
- C  $2 \times 2 \times 3 \times 3 \times 5$
- D  $2 \times 2 \times 2 \times 2 \times 3 \times 5$

**Answer:** D

**Explanation:**

$$240 = 16 \times 3 \times 5 = 2^4 \times 3 \times 5 = 2 \times 2 \times 2 \times 2 \times 3 \times 5.$$

D is correct choice.

**Question 47**

**Find the ODD one out from the given options.**

- A HJH
- B QSQ
- C TRT
- D BDB

**Answer:** C

**Explanation:**

Other than TRT, each letter in middle position of is two letter away from the first and last positioned letter.

So, C is correct choice.

**Question 48**

**A father is aged twice more than his son. The HCF of their ages is 22. What is the son's age?**

A 24 years

B 20 years

C 22 years

D 18 years

**Answer: C**

**Explanation:**

Let say, son's age= $x$ .

So, father's age= $2x$ .

So, LCM( $x, 2x$ )= $2x$ .

So, According to question,

$$x \times 2x = 22 \times 2x.$$

$$\text{or, } x = 22.$$

C is correct choice.

**Question 49**

**If in a certain code 'TWENTY' is written as 863985 and 'ELEVEN' is written as 323039, how will 'TWELVE' be written in that code?**

A 863584

B 863063

C 863203

D 863903

**Answer: C**

**Explanation:**

'TWENTY' is written as 863985 and 'ELEVEN' is written as 323039' means

T=8, W=6, E=3, N=9, Y=5, L=2, V=0.

So, TWELVE=863203.

C is correct choice.

**Question 50**

**Find the least multiple of 7 that leaves the remainder 4 when divided by 6, 9, 15 and 18.**

A 184

B 94

C 274

D 364

Answer: D

Explanation:

$$6 = 3 \times 2, 9 = 3 \times 3, 15 = 3 \times 5, 18 = 3 \times 3 \times 2.$$

$$\text{So, LCM of } (6, 9, 15, 18) = 9 \times 5 \times 2 = 90.$$

$$\text{So, the required number should be in the form of } (90 \times 7 \times k + 4) \text{ or } (360k + 4).$$

So, the least number is 364 when  $k=1$ .

D is correct choice.

Question 51

One day morning, Priya was walking towards sun and took four times left turn. Which direction is she facing now?

A South

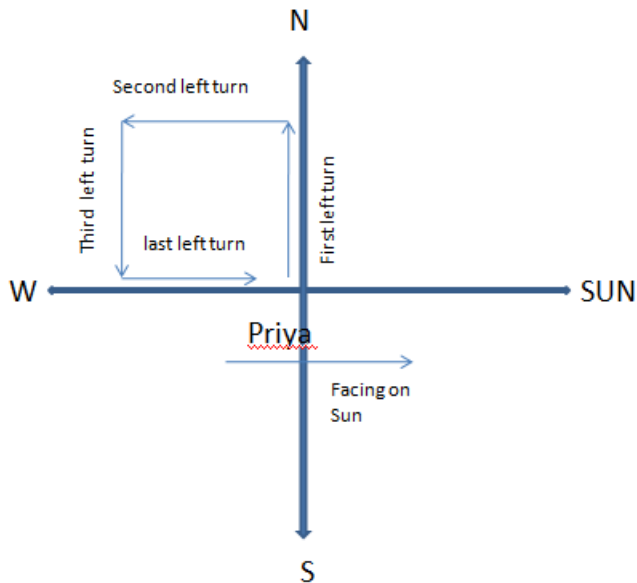
B East

C North east

D North

Answer: B

Explanation:



So, his final direction would be on East.

B is correct choice.

Question 52

BRICS Economic Research Annual Awards was instituted by?

A SEBI

B EXIM

C NABARD

D IDBI

**Answer: B**

**Question 53**

**Which former Indian Prime Minister was Deputy Prime Minister under Morarji Desai?**

- A V.P. Singh
- B Charan Singh
- C I. K. Gujral
- D Atal Bihari Vajpayee

**Answer: B**

**Question 54**

**Which is the smallest bone in the human body?**

- A Stirrup bone
- B Hip bone
- C Fore arm bone
- D Rib

**Answer: A**

**Question 55**

**Which of the following is known for tiger reserves?**

- A Vedanthangal
- B Mudumalai
- C Koonthankulam
- D Vettangudi

**Answer: B**

**Question 56**

**A car is running at a speed of 216 km/hr. What distance will it cover in 30 seconds?**

- A 1400 m
- B 1200 m
- C 1600 m
- D 1800 m

**Answer: D**

**Question 57**

Atoms having the same mass number but different atomic numbers are known as?

- A Nucleons
- B Isotopes
- C Isotones
- D Isobars

**Answer:** D

**Question 58**

Find the product of  $(a^2) \times (2a^{22}) \times (4a^{23})$ .

- A  $4a^{46}$
- B  $8a^{22}$
- C  $8a^{27}$
- D  $8a^{47}$

**Answer:** D

**Explanation:**

$$a^2 \times 2a^{22} \times 4a^{23}$$

$$= 8a^{(2+22+23)}.$$

$$= 8a^{47}.$$

D is correct choice.

**Question 59**

The movement of water molecule from one cell to another depends on -

- A Plasma pressure
- B Osmotic concentration
- C Turgor pressure
- D Wall pressure

**Answer:** B

**Question 60**

Find the largest 4 digit number that is exactly divisible by 88.

- A 9944
- B 9768

C 8894

D 9844

**Answer: A**

**Explanation:**

Last three digit of 944 is exactly divisible by 8 and 9944 is also divisible by 11.

So, 9944 is the largest which is divisible by 88.

A is correct choice.

**Question 61**

**Ages of P and Q are 50 and 40 respectively. How long ago was the ratio of their ages 3 : 2?**

A 10 years

B 5 years

C 15 years

D 20 years

**Answer: D**

**Explanation:**

Let say , x years ago their age ratio was 3:2.

So,

$$\frac{50-x}{40-x} = \frac{3}{2}$$

$$\text{or, } 100 - 2x = 120 - 3x.$$

$$\text{or, } 3x - 2x = 120 - 100.$$

$$\text{or, } x=20.$$

D is correct choice.

**Question 62**

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

Seven members A, B, C, D, E, F and G represent different countries in Olympics are Germany, China, Korea, France, Russia, Austria and Japan; each one competes for a different sport, viz. volleyball, archery, basketball, tennis, boxing, athletics and football. The order of persons, countries and games is not necessarily the same. C represents China for archery. D represents Germany but not for volleyball or basketball. One who represents Japan competes for boxing. E competes for volleyball but not Korea. A represents Austria for athletics. The one who represents Russia competes for tennis. F does not represent Korea or Japan. G competes for basketball.

**Who among the following represents Japan?**

A B

B F

C C

D G

**Answer: A**

Explanation:

Member Name	Country Name	Game Name
A		
B		
C	China	Archery
D		
E		
F		
G		

C represents China for archery..

Member Name	Country Name	Game Name
A		
B		
C	China	Archery
D	Germany	
E		
F		
G		

D represents Germany but not for volleyball or basketball.

Member Name	Country Name	Game Name
A		
B		
C	China	Archery
D	Germany	
E		Volleyball
F		
G		

E competes for volleyball but not Korea.

Member Name	Country Name	Game Name
A	Austria	Athletes
B		
C	China	Archery
D	Germany	
E		Volleyball
F		
G		

A represents Austria for athletics.

Member Name	Country Name	Game Name
A	Austria	Athletes
B		
C	China	Archery
D	Germany	
E		Volleyball
F		
G		Basketball

G competes for basketball.

Member Name	Country Name	Game Name
A	Austria	Athletes
B	Japan	Boxing
C	China	Archery
D	Germany	
E		Volleyball
F		
G		Basketball

One who represents Japan competes for boxing and F does not represent Korea or Japan.



Member Name	Country Name	Game Name
A	Austria	Athletes
B	Japan	Boxing
C	China	Archery
D	Germany	
E		Volleyball
F	Russia	Tennis
G		Basketball

The one who represents  
Russia competes for tennis.

Member Name	Country Name	Game Name
A	Austria	Athletes
B	Japan	Boxing
C	China	Archery
D	Germany	Football
E	France	Volleyball
F	Russia	Tennis
G	Korea	Basketball

E competes for volleyball but  
not Korea, means E is from  
France.

So, B represents Japan.

A is correct choice.

### Question 63

A coin is tossed four times. What is the probability of getting 'head' in the first two tosses?

A  $\frac{3}{8}$

B  $\frac{5}{16}$

C  $\frac{1}{4}$

D  $\frac{3}{16}$

Answer: C

### Explanation:

If a coin tossed, chance of getting a head is  $= \frac{1}{2}$ .

If a coin tossed 4 times then probability of getting two head is  $= \frac{2}{4} = \frac{1}{2}$ .

So, required probability  $= \frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$ .

C is correct choice.

**Question 64**

The small blood vessels under our skin are called?

- A Capillaries
- B Cells
- C Nerves
- D Veins

**Answer:** A

**Question 65**

Astronomers have recently discovered evidence of abundant water-bearing minerals on the surface of which near-Earth asteroid?

- A 99942 Apophis
- B 101955 Bennu
- C 21 Lutetia
- D 433 Eros

**Answer:** B

**Question 66**

If 'FRIEND' is coded as 'HUMJTK', how is 'CANDLE' coded?

- A EDRIRL
- B ESJFME
- C FYOBOC
- D DCQHQQ

**Answer:** A

**Explanation:**

$F + 2 = H, R + 3 = U, I + 4 = M, E + 5 = J, N + 6 = T, D + 7 = K.$

Similarly,

CANDLE=EDRIRL

A is correct choice.

**Question 67**

The measurements from \_\_\_\_\_ are taken for the spherical lenses according to sign conventions

- A Optical centre
- B Pole
- C Principal focus

D Both principal focus and pole

Answer: A

### Question 68

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

L, M, N, O, P, Q, R and S are playing a game standing in a circle facing outwards. N is neither the neighbour of L nor of R. O is the neighbour of L but not of S. P is the neighbour of S and is third to the right of Q. M is the neighbour of Q and fourth to the left of O.

Who among the following stands third to the left of O?

A Q

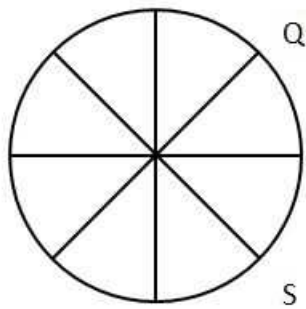
B M

C S

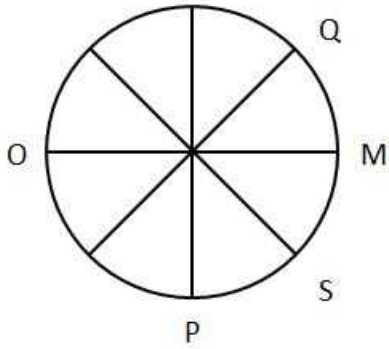
D P

Answer: C

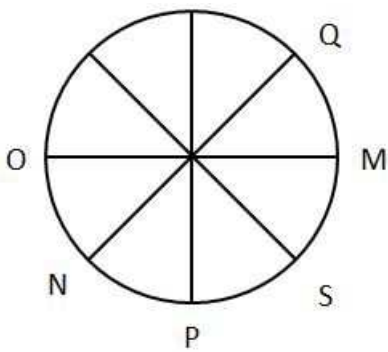
Explanation:



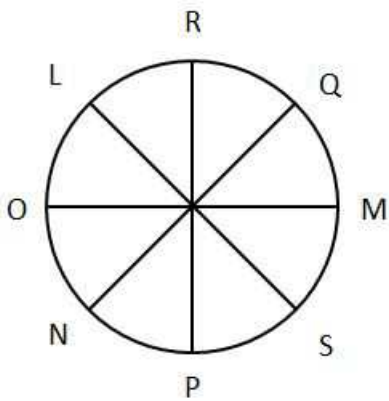
if we consider above figure from, P is the neighbour of S and is third to the right of Q.



M is the neighbour of Q and fourth to the left of O.  
So, M can not be on the left of Q, it has to be on right side of Q.



N is neither the neighbour of L nor of R.  
It means that L and R together sit and N situated between P and O.



N is neither the neighbour of L nor of R. And O is the neighbour of L but not of S.

So, S is third to the left of O.

C is correct choice.

**Question 69**

**Sucrose occurs naturally in?**

- A Sugarcane

- B Rice
- C Maize
- D Wheat

Answer: A

**Question 70**

X does half as much work as Y in 1/6 of time. If together they can complete a job in 10 days, how many days will Y take to complete it, when he works alone?

- A 35 days
- B 24 days
- C 40 days
- D 30 days

Answer: C

**Explanation:**

It is given that X does half as much work as Y in 1/6 of time,

So,

$$\frac{1}{6} \times \frac{1}{X} = \frac{1}{2} \times \frac{1}{Y}$$

$$\text{or, } \frac{X}{Y} = \frac{1}{3}.$$

They together do in 10 days.

$$\frac{1}{X} + \frac{1}{Y} = \frac{1}{10}.$$

$$\text{or, } \frac{1}{X} + 3 \times \frac{1}{X} = \frac{1}{10}.$$

$$\text{or, } 3 \times \frac{1}{X} = \frac{1}{10}.$$

$$\text{or, } X = \frac{40}{3}.$$

$$\text{So, } Y = \frac{40}{3} \times 3 = 40.$$

C is correct choice.

**Question 71**

Which of the following dams in India is an example for arch dam?

- A Lakhwar dam
- B Bhakra Dam
- C Tehri dam
- D Idukki dam

Answer: D

**Question 72**

The difference between Compound Interest and Simple Interest in 2 years on a certain sum is Rs.8 at 8% rate. What is the sum?

- A Rs.1500
- B Rs.1000
- C Rs.1250
- D Rs.2000

**Answer: C**

**Explanation:**

Let say, the sum is P.

$$C.I = P \left(1 + \frac{8}{100}\right)^2 - P = 0.1664P.$$

$$S.I = P \frac{2 \times 8}{100} = \frac{16P}{100}.$$

$$\text{So, } C.I - S.I = 0.1664P - 0.1600P = 8.$$

$$\text{or, } 0.0064P = 8.$$

$$\text{or, } P = 1250.$$

C is correct choice.

**Question 73**

**Simplify  $3.\overline{36} - 2.\overline{05} + 1.\overline{33}$**

- A  $2.\overline{64}$
- B  $2.\overline{61}$
- C 2.64
- D  $2.\overline{64}$

**Answer: A**

**Explanation:**

Let say,  $0.36 = x$ ,  $0.05 = y$  and  $0.33 = z$ .

$$\text{So, } 36.36 = 100x$$

$$\text{or, } 36 + x = 100x.$$

$$\text{or, } x = \frac{36}{99}.$$

$$\text{and, } y = 0.05$$

$$\text{or, } 100y = 5 + 0.05 = 5 + y.$$

$$\text{or, } y = \frac{5}{99}.$$

and,

$$z = 0.33$$

$$\text{or, } 100z = 33 + 0.33 = 33 + z.$$

$$\text{or, } z = \frac{33}{99}.$$

So,

$$3.\overline{36} - 2.\overline{05} + 1.\overline{33}$$

$$= 3 + x - 2 - y + 1 + z.$$

$$= 3 + \frac{36}{99} - 2 - \frac{5}{99} + 1 + \frac{33}{99}.$$

$$= 2 + \frac{36-5+33}{99}$$

$$= 2 + \frac{64}{99}$$

$$= 2 + 0.64 = 2.64.$$

A is correct choice.

#### Question 74

ISRO Launched PSLV C-45 Carrying EMISAT with how many nano satellites in 2019?

A 40

B 28

C 25

D 23

Answer: B

#### Question 75

When did Himachal Pradesh celebrate its 72nd Himachal Day?

A 16 April

B 13 April

C 15 April

D 18 April

Answer: C

#### Question 76

When is 'World Wetlands Day' celebrated?

A February 2

B March 2

C December 16

D November 14

Answer: A

#### Question 77

Simplify  $\left(\frac{2}{3}\right) + \left(\frac{5}{6}\right) - \left(\frac{1}{9}\right) + \left(\frac{7}{9}\right)$

A  $\frac{13}{6}$

B  $\frac{17}{9}$

~~

C  $\frac{35}{18}$

D  $\frac{43}{18}$

Answer: A

Explanation:

$$\frac{2}{3} + \frac{5}{6} - \frac{1}{9} + \frac{7}{9}$$

$$= \frac{12+15-2+14}{18}$$

$$= \frac{39}{18}$$

$$= \frac{13}{6}$$

A is correct choice.

#### Question 78

Two pipes P and Q together can fill a cistern in 4 hours. When opened separately, Q will take 6 hours more than P to fill the cistern. In how much time can P alone fill the cistern?

A 6 hours

B 7 hours

C 8 hours

D 5 hours

Answer: A

Explanation:

Let pipe P take  $x$  hours to fill the cistern. Then pipe Q takes  $(x+6)$  hours to fill the same cistern.

Pipes P and Q together fill  $(1/x)+1/(x+6) = 1/4$ th of the cistern in 1 hours

$$4(x + 6 + x) = x(x + 6)$$

$$8x + 24 = x^2 + 6x$$

$$\text{or, } x^2 - 2x - 24 = 0$$

$$\text{or, } (x - 6)(x + 4) = 0$$

$$\text{or, } x = 6.$$

A is correct choice.

#### Question 79

The difference between Compound Interest, compounded half-yearly and Simple Interest for two years on a certain sum at 10% rate is Rs.124.05. Find the sum.

A Rs.8400

B Rs.10000

C Rs.8200

D Rs.8000

Answer: D

Explanation:

Simple Interest for ₹ 100 for 2+ years @ 10% interest =  $\frac{PNR}{100}$

$$= ₹ 100 \times 2 \times 10/100 = ₹ 20.$$



Compound interest for ₹ 100 for 2- years @ 10% interest compounded every 6- months

$$= ₹100 (1.05)^4 - 100 = ₹ 21.550625$$

So difference in the compound interest and Simple Interest= ₹(21.550625- 20) = ₹1.550625

Therefore if the difference is ₹1.550625 the principal is= ₹100.

If the difference is ₹124.05 the Principal =  $124.05/1.550625 \times 100$

$$= ₹ 8000$$

D is correct choice.

#### Question 80

What does a scalar quantity have?

- A Only magnitude
- B Either direction or magnitude
- C Only direction
- D Both magnitude and direction

Answer: A

#### Question 81

Mendeleev's periodic law is based on?A)Atomic mass B)Number of neutrons

- A Atomic mass
- B Number of neutrons
- C Atomic radius
- D Atomic number

Answer: A

#### Question 82

Which of the following is the natural fuel formed deep under the Earth from the pre-historic remains of living organisms like plants and animals?

- A Solid fuels
- B Fossil fuels
- C Liquid fuels
- D Gaseous fuels

Answer: B

#### Question 83

Height 'h' of a cylinder equals the circumference of its base. Then, the curved surface area in terms of 'h' is:

- A  $h^2$

B  $h^3$

C  $3h^2$

D  $\frac{2h}{3}$

**Answer:** A

**Explanation:**

According to question,

$$h = 2\pi r.$$

$$\text{or, } r = \frac{h}{2\pi}.$$

$$\text{So, curved surface area} = 2\pi r \times h = 2\pi \times \frac{h}{2\pi} \times h = h^2.$$

A is correct choice.

**Question 84**

**Who among the following was a Governor-General of India?**

A Maulana Azad

B C. Rajagopalachari

C B.R. Ambedkar

D Sardar Vallabhbhai Patel

**Answer:** B

**Question 85**

**Under which of the following Parts of the Indian Constitution were Article 36 to 51 listed?**

A The Co-operative society

B Fundamental duties

C The Municipalities

D Directive principles of state policy

**Answer:** D

**Question 86**

**Complete the series. 165, 275, 15, 25, 3, (...)**

A 5

B 12

C 11

D 8

**Answer:** A

**Explanation:**

The odd columns are

$$\begin{array}{cc} 165, & 15, & 3 \\ \hline & \div 11 & \div 5 \end{array}$$

And the even columns are

$$\begin{array}{cc} 275, & 25, & 5 \\ \hline & \div 11 & \div 5 \end{array}$$

5 is the next number in sequence.

A is correct choice.

**Question 87**

**Shattering of glass and damage to buildings can be caused by?**

- A Sound at about 10kHz
- B Subsonic sound
- C Infrasound
- D Shock waves produced by supersonic aircraft

**Answer:** D

**Question 88**

**Which word will best complete the relationship given below?**

**Cobbler : Awl :: Barber : ?**

- A Scissors
- B Plough
- C Sword
- D Spade

**Answer:** A

**Question 89**

**Which cells present in the retina are sensitive to bright and normal light, and gives colour sensation ?**

- A Bright cells
- B Blind cells
- C Rods or rod shaped cells
- D Cones or cone shaped cells

**Answer:** D

**Question 90**

How many natural numbers up to 100 are divisible by both 2 and 3?

- A 13
- B 14
- C 17
- D 16

**Answer:** D

**Explanation:**

If a number is divisible by 6 then only it is divisible by 2 and 3.

There are  $\frac{100}{6} \simeq 16$  numbers up to 100 which are divisible by 2 and 3.

D is correct choice.

**Question 91**

If lubricants are used in machine parts, how does the movement become?

- A Uneven
- B Difficult
- C Rough
- D Smooth

**Answer:** D

**Question 92**

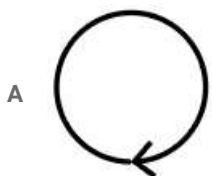
Which of the following countries has agreed to 'joint border reaction force' with Pakistan in 2019?

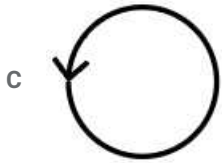
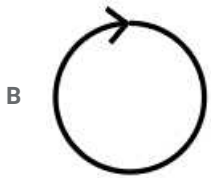
- A China
- B Iran
- C Sri Lanka
- D Afghanistan

**Answer:** B

**Question 93**

Find the odd one out from the given options





Answer: C

**Explanation:**

Diagram in A,B,D are rotated in clockwise direction but, diagram in C is rotated in anti-clockwise direction.

C is correct choice.

**Question 94**

Find the missing group of alphabets in the following series. AZ, DW, GT, (...), MN

A NO

B JQ

C RI

D CY

Answer: B

**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	

$$AZ = 1 + 26 = 27, DW = 4 + 23 = 27, GT = 7 + 20 = 27, MN = 13 + 14 = 27.$$

Similarly,

$$JQ = 10 + 17 = 27.$$

B is correct choice.

**Question 95**

If iodine is added to a peeled potato, then it will turn?

- A Red
- B Yellow
- C Black
- D Blue

**Answer: C**

#### Question 96

Priya rode her cycle 2 km westward and took right and rode another 1 km. Again she took left turn and rode 1km. How many kilometers has Priya rode towards westwards?

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

**Answer: D**

#### Explanation:

After 2 km walk through westward ,he took right turn and walk for 1 km.

It means that he walk 1 km towards Northward.

But then he walked for 1 km by took a left turn from there.

So, he walked a total of  $(2+1) = 3$  km through westward.

D is correct choice.

#### Question 97

In cricket, who decides a dismissal on the basis of the replay?

- A 2nd umpire
- B 5th umpire
- C 3rd umpire
- D 4th umpire

**Answer: C**

#### Question 98

What is the IUPAC name for acetic acid?

- A Propanoic acid
- B Ethanoic acid
- C Methanoic acid
- D Butanoic acid

**Answer: B**

**Question 99**

**Which is the highest literary award of India?**

- A Jnanpith Award
- B Vyas Samman
- C Sahitya Akademi Award
- D Kabir

**Answer: A**

**Question 100**

**Each interior angle of a regular polygon is greater than its exterior angle by  $36^\circ$ . Find the number of sides of the polygon.**

- A 4
- B 5
- C 10
- D 8

**Answer: B**

**Explanation:**

In the regular polygon, interior angle (IA) = exterior angle (EA) + 36, or

$$EA = IA - 36.$$

But  $IA + EA = 180$ , or

$$2 IA - 36 = 180$$

$$2IA = 216,$$

$$IA = 108 \text{ deg and } EA = 72 \text{ deg}$$

$$\text{Number of sides of regular polygon} = 360/72 = 5.$$

B is correct choice.

**RRB JE**  
**2nd June 2019**  
**Shift-2**

**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.

**Question 2**

An alloy is a/an?

A Element

B Compound

C Homogenous mixture

D Heterogeneous mixture

Answer: C

**Question 3**

Simplify  $1035 \div [4^3(71+65) - 15^3]$



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

**Answer: A**

**Explanation:**

$$\begin{aligned}
 1035 &\div [4^3(71 + 65) - 15^3] \\
 &= 1035 \div [4^3(136) - 4^3] \\
 &= 1035 \div [4^{408-63}] \\
 &= 1035 \times 3^4_5 \\
 &= 3 \times 4 = 12.
 \end{aligned}$$

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**

**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,

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

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.

### 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.

**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**

**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.

**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**

**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**

**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 Dioptre equal to?

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

**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**

**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,

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

and

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

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**



**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**

**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 Diptheria
- D Tetanus

**Answer: B**

**Question 34**

**Which of the following is a milk protein?**

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

**Answer: B**

**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:**

$$2^{25} + 2^{26} + 2^{27} + 2^{28}$$

$$= 2^{25} (1 + 2 + 2^2 + 2^3).$$

$$= 2^{25} (1 + 2 + 4 + 8).$$

$$= 2^{25} \times 15.$$

So, it is divisible by 15 .

B is correct choice.

**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

**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**

**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**

**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,

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

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

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

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

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

So, D is correct choice.

#### Question 49

**Pepsin is an enzyme secreted in the?**

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

**Answer: D**

#### 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

Question 53

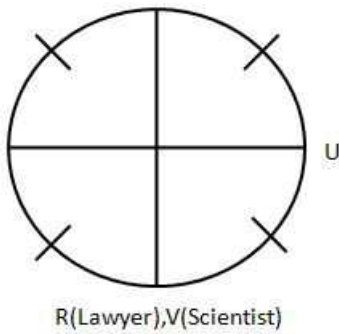
Read the following information carefully and answer the question given below.

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?

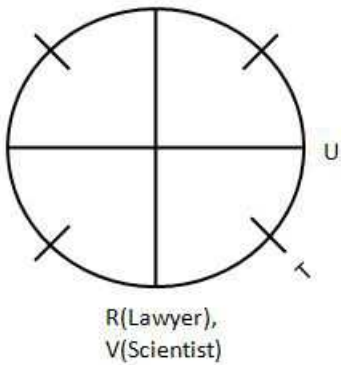
- A Q
- B R
- C U
- D T

Answer: B

Explanation:

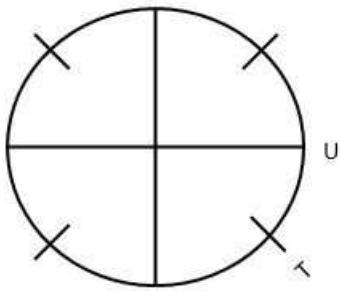


Among the males R (the Lawyer) and V (the Scientist) are sitting together. Each man is seated beside to his wife. U, the wife of the Lecturer is seated second to the right of V. So, Lecture should be on either left or right side of U.



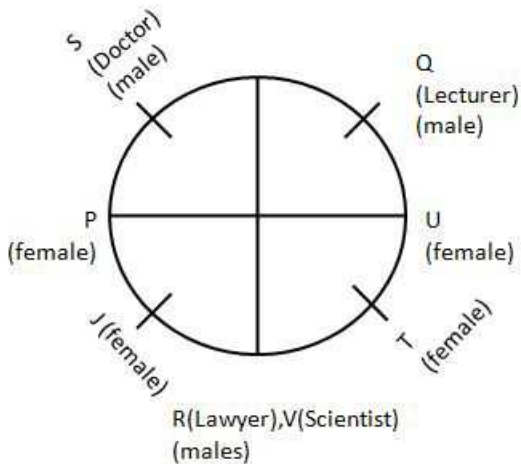
T is seated between U and V.





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.

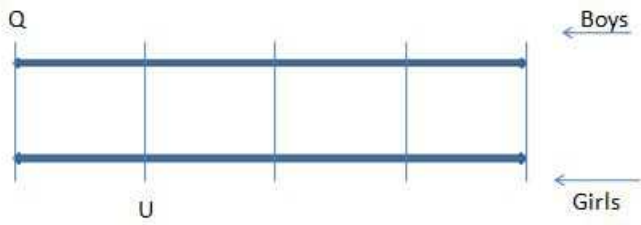
Six boys—M, N, O, P, Q, R and six girls—U, V, W, X, Y, Z are standing in rows in such a way that each girl faces one boy, not necessarily in the same order. U is to the immediate right of the girl who is facing Q the boy at the extreme right. Only N is between P and Q. R is to the immediate left of M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

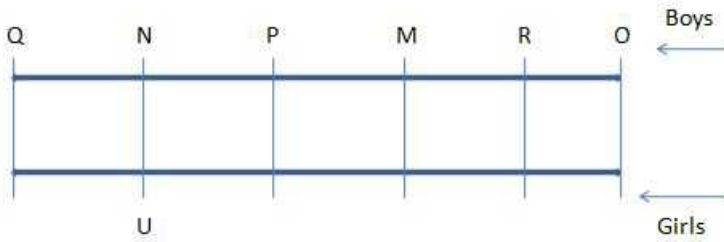
- A X
- B Y
- C Z
- D V

Answer: C

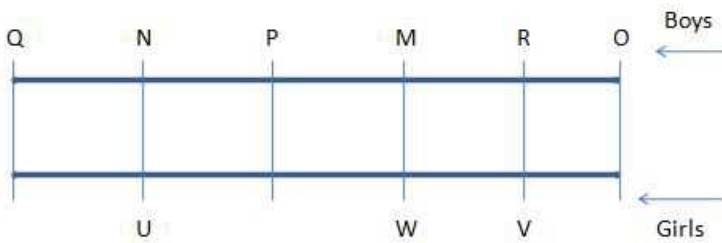
Explanation:



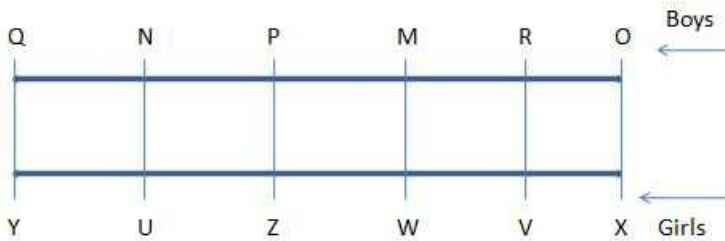
U is to the immediate right of the girl who is facing Q the boy at the extreme right.



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

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.

Question 56

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

A South east

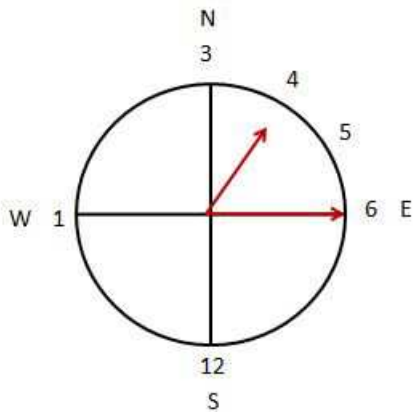
B North west

C North east

D North

Answer: C

Explanation:



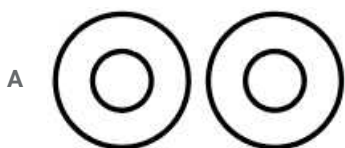
If minute hand in 4:30 ,minute hand in East side , then hour hand should be in North-East.

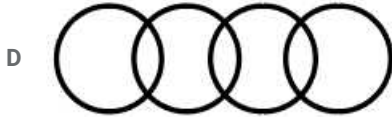
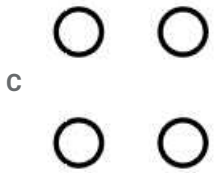
C is correct choice.

Question 57

Choose the figure that best represents the relation ship 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

#### 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,

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

$$\text{So, } \frac{P \left(1 + \frac{r}{100}\right)^3}{P \left(1 + \frac{r}{100}\right)^2} = \frac{1606}{1260} = 1.2746.$$

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

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

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**

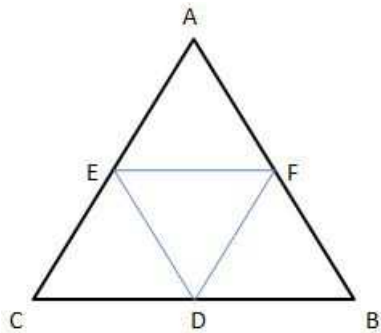
**Question 61**

D, E, F are midpoints of the sides BC, CA, AB of a  $\Delta ABC$ . If area of  $\Delta ABC$  is  $20 \text{ cm}^2$ , then find area of the trapezium FBCE.

- A  $12 \text{ cm}^2$
- B  $15 \text{ cm}^2$
- C  $10 \text{ cm}^2$
- D  $5 \text{ cm}^2$

**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.

**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,

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

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

And,

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

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

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

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

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

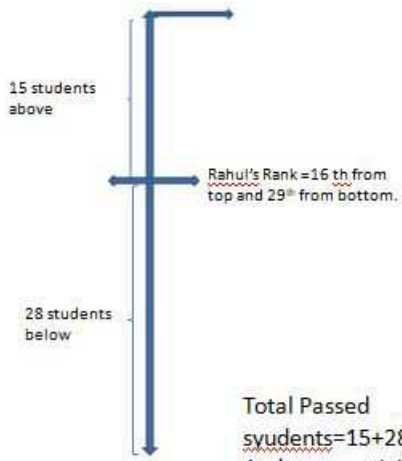
B 55

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

**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.

#### 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.

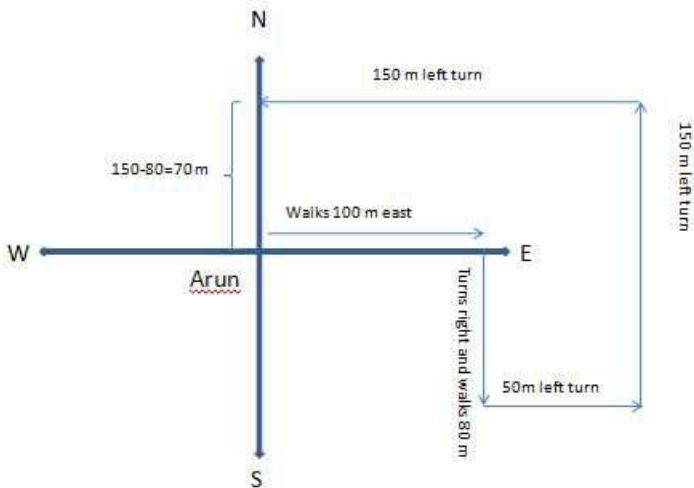
**Question 73**

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.

**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,

$$\frac{4}{3} \pi r^3$$
$$4\pi r^2 = 27.$$

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

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**

**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:**

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

$$\text{So, } 0.034 \times 10 = x$$

$$\text{or, } x = 0.34.$$

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.

#### 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.

**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.

#### 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

**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:**

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

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

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

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

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**

**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.

**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  $\frac{16}{25}$ . 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,

$$\frac{x + \frac{100}{100}x}{y + \frac{150}{100}y} = \frac{16}{25}$$

$$\text{or, } \frac{2x}{2.5y} = \frac{16}{25}$$

$$\text{or, } y = \frac{16}{25} \times \frac{2.5}{2} = \frac{8}{10} = \frac{4}{5}$$

C is correct choice.

**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

**RRB JE**  
**2nd June 2019**  
**Shift-3**

**Instructions**

For the following questions answer them individually

**Question 1**

If the midvalue of a class is 20 and the width of the class is 5, find the lower and upper limits of the class.

- A 17 - 23
- B 17 - 22
- C 17.5 - 22.5
- D 18 - 22

Answer: C

**Question 2**

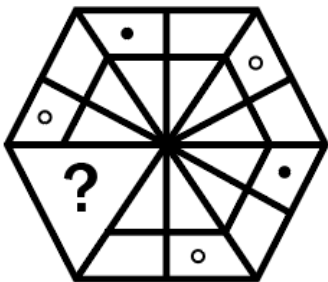
What is the definite path on which the planet revolves around the Sun, called as?

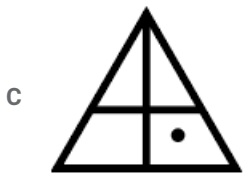
- A Ring
- B Orbit
- C Path
- D Axis

Answer: B

**Question 3**

Choose from the alternatives the figure that best completes the pattern given below.





Answer: C

**Question 4**

The male and female sex cells fuse to form a?

- A Gastrula
- B Zygote
- C Gamete
- D Blastula

Answer: B

**Question 5**

Dialysis is used when a patient has serious trouble with?

- A Lungs
- B Kidneys
- C Liver
- D Heart

Answer: B

**Question 6**

What is blood?

- A A supporting tissue
- B A connective tissue
- C A packing tissue
- D A muscular tissue

Answer: B

**Question 7**

The medium required for transmission of sound should be in \_\_\_\_\_ state.

- A Solid
- B Gas
- C Liquid
- D All of the options

Answer: D

#### Question 8

The angle of elevation of the top of a chimney from the top of a tower is  $60^\circ$  and the angle of depression of foot of the chimney from the top of the tower is  $30^\circ$ . If the height of the tower is 40 m, then find the height of the chimney.

- A 160 m
- B 220 m
- C 175 m
- D 192 m

Answer: A

#### Question 9

Simplify:  $10 \times 4 - 2 \times (4^2 \div 4) \div 2 \left(\frac{1}{2}\right) + 9$

- A 41
- B 35
- C 40
- D 31

Answer: A

#### Question 10

Which of the following statements is TRUE about acids?

- A Sour and change blue litmus to red
- B Bitter and change blue litmus to red
- C Sour and change red litmus to blue
- D Bitter and change red litmus to blue

Answer: A

**Question 11**

In this question, two statements are given followed by two conclusions. Choose the conclusion(s) which best fit(s) logically.

**Statements:**

1) All windows are doors.

2) All doors are walls.

**Conclusions:**

I. All windows are walls.

II. Some doors are windows.

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

**Answer: B**

**Question 12**

The capacity of a cylindrical tank is  $3080 \text{ m}^3$ . If the radius of its base is 7 m, find the depth of the tank.

- A 15 m
- B 10 m
- C 25 m
- D 20 m

**Answer: D**

**Question 13**

Find the number of carpets required to spread along the floor of a room of dimensions  $40\text{m} \times 24\text{m}$ , if each carpet measures  $6\text{m} \times 4\text{m}$ .

- A 15
- B 12
- C 40
- D 18

**Answer: C**

**Question 14**

To which dynasty did Ashoka belong?

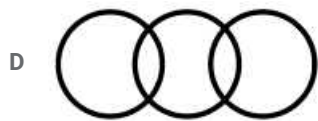
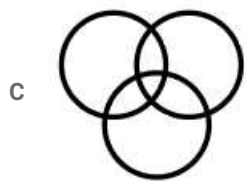
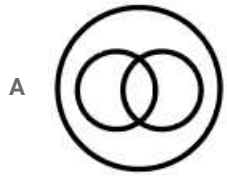
- A Gupta
- B Maurya
- C Kanva

D Nanda

Answer: B

Question 15

Choose the figure that best represents the relationship among the classes given below.  
Adult, Singer, Children



Answer: D

Question 16

In a certain code language, 123 means 'hot filtered coffee'; 356 means 'very hot day' and 589 means 'day and night'. Which digit stands for 'very'?

A 9

B 5

C 8

D 6

Answer: D



Question 17

Choose the alternative that best replaces the question mark (?) in the given figure.

6	9	7
3	5	2
10	7	?
30	28	25

A 4

B 5

C 6

D 3

Answer: B

Question 18

The sum of two numbers is 232. Their HCF is 29. Which of these pairs give the possible values of the numbers?

A 55, 177

B 22, 137

C 58, 174

D 29, 203

Answer: D

Question 19

Which of the following is an 'Air to Air Missile'?

A Akash

B Maitri

C Astra

D Trishul

Answer: C

Question 20

Electronegativity is the measure of the capacity of an atom to?

A Repel protons

B Attract electrons

C Repel electrons

D Attract protons

Answer: B

#### Question 21

The modern periodic table has vertical columns known as?

A Columns

B Periods

C Table

D Groups

Answer: D

#### Question 22

Value of  $\frac{0.33}{0.22} \times \frac{0.1667 \times 0.8333}{0.6667 \times 0.1250}$  is nearly equal to:

A 2.5

B 1.5

C 3

D 2

Answer: A

#### Explanation:

$$\frac{0.33}{0.22} \times \frac{0.1667 \times 0.8333}{0.6667 \times 0.1250}$$

$$\Rightarrow \frac{33}{22} \times \frac{1667 \times 8333}{6667 \times 1250} = 2.5$$

#### Question 23

In this question, two statements are given followed by two conclusions. Choose the conclusion(s) which best fit(s) logically.

Statements:

1) All cows are crows.

2) Some elephants are crows.

Conclusions:

I. All cows are elephants.

II. Some elephants are cows.

A Both conclusions I and II follow

B Only conclusion I follows

C Neither conclusion I nor II follows

D Only conclusion II follows

Answer: C

**Question 24**

Which of the following countries was the first to launch the world's first fully-fledged 5G mobile networks in 2019?

- A Japan
- B USA
- C South Korea
- D North Korea

**Answer: C**

**Question 25**

Find the equation whose roots are  $(a + \sqrt{b})$  and  $(a - \sqrt{b})$

- A  $x^2 + 2ax - (a^2 - b) = 0$
- B  $x^2 - ax + a^2 - b^2 = 0$
- C  $x^2 - 2ax + (a^2 - b) = 0$
- D  $x^2 + ax + a^2 - b^2 = 0$

**Answer: C**

**Explanation:**

By option C,

$$\begin{aligned}x^2 - 2ax + (a^2 - b) &= 0 \\ \Rightarrow x^2 - (a + \sqrt{b})x - (a - \sqrt{b})x + (a^2 - b) &= 0 \\ \Rightarrow x(x - (a + \sqrt{b})) - (a - \sqrt{b})(x - (a + \sqrt{b})) &= 0 \\ \Rightarrow (x - (a + \sqrt{b}))(x - (a - \sqrt{b})) &= 0 \\ \Rightarrow x = (a + \sqrt{b}) \text{ or } x = (a - \sqrt{b})\end{aligned}$$

**Question 26**

A person is said to be anemic if his body has deficiency of -

- A White Blood Corpuscles
- B Red Blood Corpuscles
- C Calcium and phosphorous
- D Vitamins

**Answer: B**

**Question 27**

Toxicology is related to the study of?

- A Diseases

- B Bacteria
- C Poisons
- D Viruses

Answer: C

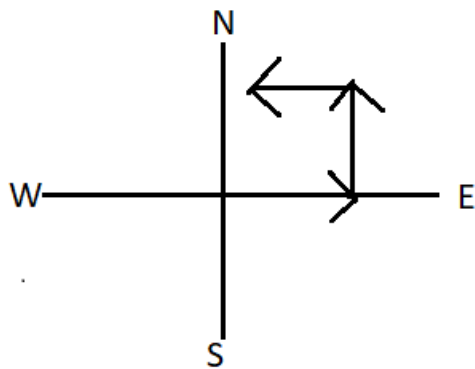
**Question 28**

One day morning, a girl was walking towards sun and then she turned left. Again she took left turn. Which direction was she facing now?

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

Answer: C

Explanation:



first she walks towards east after that take a left turn and walk towards north again a take a left turn and walk towards west

**Question 29**

Choose the number that is divisible by 11.

- A 1341
- B 3178
- C 325182
- D 16461

Answer: C

Explanation:

According to the divisibility rule of 11, we must subtract and then add the digits in an alternating pattern from left to right . If the answer is 0 or 11 then the result is divisible by 11.

here the number is 325182

$$3 + 5 + 8 = 16$$

$$2 + 1 + 2 = 5$$

$$16 - 5 = 11$$

thus number is divisible by 11

**Question 30**

Walking at 4 mph, a person covers a certain distance in a given time. If he increases his speed to 9 mph, he covers 7.5 miles more in the same time. How much distance does he cover originally?

- A 7.5 miles
- B 5 miles
- C 6 miles
- D 6.5 miles

**Answer:** C

**Explanation:**

$$speed = \frac{distance}{time}$$

Walking at 4 mph, a person covers a certain distance in a given time.

let the distance be  $d$  and time  $t$

$$4mph = \frac{d}{t} \dots\dots\dots(1)$$

If he increases his speed to 9 mph, he covers 7.5 miles more in the same time

$$9mph = \frac{d+7.5}{t} \dots\dots\dots(2)$$

from (1) and (2)

$$\frac{d}{4} = \frac{d+7.5}{9}$$

$$\text{solving } d = \frac{30}{5} = 6miles$$

**Question 31**

The first attempt to classify elements was made by?

- A Dobereiner
- B Newland
- C Meyer
- D Mendeleev

**Answer:** A

**Question 32**

Two numbers in the ratio 15 : 11 have their HCF to be 13. What is their LCM?

- A 27885
- B 2145
- C 4290
- D 165

**Answer: B**

**Explanation:**

let the two numbers be  $15x$  and  $11x$

hence  $HCF = x = 13$

two numbers are  $15 \times 13 = 195$

$11 \times 13 = 143$

product of two numbers equal to the product of the HCF and LCM

$195 \times 143 = 13 \times LCM$

solving,  $LCM = \frac{195 \times 143}{13} = 2145$

**Question 33**

**Which force is exerted by air on objects moving through it?**

- A Force of gravity
- B Magnetic force
- C Electrostatic force
- D Frictional force

**Answer: D**

**Question 34**

**Which of the following is a good conductor of electricity?**

- A Phosphorous
- B Sulphur
- C Copper
- D Nitrogen

**Answer: C**

**Question 35**

**Find the ODD one out from the given options.**

- A BO
- B ES
- C CP
- D DQ

**Answer: B**

**Question 36**

**Alkalis turn universal indicators?**

- A Green
- B Yellow
- C Blue
- D Red

Answer: C

**Question 37**

A boat takes 12 hours to go downstream and 24 hours to return while covering a certain distance. What is the time taken by the boat to cover the same distance in still water?

- A 16 hours
- B 18 hours
- C 10 hours
- D 15 hours

Answer: A

**Explanation:**

if  $t_1$  and  $t_2$  are the upstream and downstream times. Then time taken in still water is given by

$$\frac{2 \times t_1 \times t_2}{t_1 + t_2} = \frac{2 \times 12 \times 24}{36} = 16hrs$$

**Question 38**

Choose the alternative that best replaces the question mark(?) in the given figure.

2	4	3
3	6	8
6	7	5
20	46	?

- A 45
- B 48
- C 40
- D 43

Answer: D

**Question 39**

Compound Interest and Simple Interest on a certain sum of money for 2 years is Rs.282.15 and Rs.270 respectively. The rate of interest is:

- A  $6\frac{2}{3}\%$

B 11%

C 9%

D  $\frac{1}{83}$  %

**Answer: C**

**Explanation:**

CI for 2 years = Rs 282.15

SI for 2 years = Rs 270

SI for 1 year =  $\frac{270}{2} = 135$

difference between SI and CI = 282.15 - 270 = 12.15 Rs

rate% =  $\frac{12.15}{135} \times 100 = 9\%$

for 1st year CI and SI will be same

**Question 40**

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

Eight persons—L, M, N, O, P, Q, R and S are sitting around a circular table facing the center but not necessarily in the same order. Each one of them holds a different post—Manager, Secretary, Chairman, President, Vice President, Group Leader, Financial Advisor and Managing Director. L sits third to the right of the Managing Director, and only two people sit between the Managing Director and S. The Vice President and the Secretary are immediate neighbours. Neither L nor S is a Vice President or a Secretary. The Vice President is not an immediate neighbour of the Managing Director. The Manager sits second to the left of P. P is not an immediate neighbour of S. The Manager is an immediate neighbour of both the Group Leader and the Financial Advisor. The Financial Advisor sits third to the right of M. M is not the Vice President. N sits to the immediate right of the Chairman. L is not the Chairman. Q is not an immediate neighbour of L. R is not an immediate neighbour of the Manager.

Which of the following posts is held by M in the company?

A Manager

B Secretary

C Chairman

D Managing Director

**Answer: B**

**Question 41**

Comprehensive Environmental Pollution Index (CEPI) is an index value which characterises?

A Quality of the food products

B Quality of the minerals

C Quality of the fruits

D Quality of the environment

**Answer: D**

**Question 42**

Find the difference between the Simple Interest and Compound Interest on Rs.10000 for 3 years at the rate of 3% per annum.



- A Rs.27.27
- B Rs.17.82
- C Rs.21.54
- D Rs.16.25

**Answer: A**

**Explanation:**

$$SI = \frac{PNR}{100}$$

$$CI = P\left(1 + \frac{r}{100}\right)^n$$

$$P = 10000$$

$$N = 3 \text{ years}$$

$$R = 3\%$$

$$SI = \frac{10000 \times 3 \times 3}{100} = 900$$

$$CI = 10000\left(1 + \frac{3}{100}\right)^3$$

$$= 927.27$$

$$CI - SI = 927.27 - 900 = 27.27$$

**Question 43**

**What is the state animal of Andhra Pradesh?**

- A Black buck
- B Sambar
- C Rhinoceros
- D Elephant

**Answer: A**

**Question 44**

**Which device present in the hearing aid receives the sound?**

- A Microphone
- B Amplifier
- C Sound actuator
- D Speaker

**Answer: A**

**Question 45**

**If '+' means 'x', '-' means '÷', 'x' means '+' and '÷' means '-', then  $42 - 6 \times 7 + 8 \div 9 - 3 = ?$**

**Latek**

- A 66

B 19

C 60

D 70

Answer: C

Explanation:

$$42 \div 6 + 7 \times 8 - 9 \div 3$$

$$7 + 7 \times 8 - 3$$

$$7 + 56 - 3$$

$$63 - 3 = 60$$

Question 46

Find the value of  $\cos 20^\circ \cos 35^\circ \cos 45^\circ \cos 55^\circ \cos 70^\circ$  is?

A 1

B  $\sqrt{2}$

C  $\frac{1}{2}$

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

Answer: D

Question 47

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

Twelve people are sitting in two parallel rows containing six people each, in such a way that there is an equal distance between adjacent persons. In row-1, G, H, I, J, K and L are seated, and all of them are facing south. In row-2, U, V, W, X, Y and Z are seated, and all of them are facing north. Therefore, in the given seating arrangement each member seated in a row faces another member of the other row. U sits third to the right of X. Neither U nor X sits at the extreme ends. K faces X. L does not face U, and L does not sit at any of the extreme ends. L is not an immediate neighbour of K. V sits at one of the extreme ends. Only two people sit between V and Y. Y does not face L. Two persons sit between I and H. I is not an immediate neighbour of K. W does not face L. G is not an immediate neighbour of I.

G is related to L in the same way as W is related to Z. Y is related to who among the following in the same pattern?

A U

B Z

C V

D X

Answer: C

Question 48

In a certain code, 'kemp lamp tems' means 'speak the truth', 'bis tim nak' means 'always seek knowledge', 'tim tems sik' means 'knowledge is truth' and 'lik bis zap' means 'never seek violence'. Which of the following stands for 'always'?

- A tim
- B zap
- C bis
- D nak

**Answer:** D

**Explanation:**

'kemp lamp tems' means 'speak the truth'.....(1)  
 'bis tim nak' means 'always seek knowledge'.....(2)  
 'tim tems sik' means 'knowledge is truth'.....(3)  
 'lik bis zap' means 'never seek violence'.....(4)  
 from (1) and (2) tems = truth  
 from (2) and (3) tim = knowledge  
 from (2) and (4) bis = seek  
 thus we get nak = always from (2)

**Question 49**

**What percentage of 5% is 3%?**

- A 50%
- B 15%
- C 30%
- D 60%

**Answer:** D

**Explanation:**

let the % be x

$$\frac{x}{100} \times \frac{5}{100} = \frac{3}{100}$$

$$x = \frac{3 \times 100 \times 100}{100 \times 5} = 60\%$$

**Question 50**

**Two pipes can fill a tank in 5 and 6 hours respectively. A third pipe will empty it in 12 hours. If all the pipes are opened, then find the time taken to either fill or empty the tank.**

- A Filled in 30/17 hours
- B Filled in 60/17 hours
- C Filled in 30/11 hours
- D Emptied in 9/2 hours

**Answer:** B

**Explanation:**

$$\text{work} = \text{efficiency} \times \text{time}$$

P1,P2 and P3 be the pipes

P1 fill the tank in 5 hrs

P2 fill the tank in 6 hrs

P3 empty the tank in 12 hrs

work done = LCM of P1,P2 and P3 = LCM (5,6,12) = 60

$$\text{efficiency of P1} = \frac{60}{5} = 12$$

$$\text{efficiency of P2} = \frac{60}{6} = 10$$

$$\text{efficiency of P3} = \frac{60}{12} = 5$$

$$\text{efficiency of P1 + P2 + P3} = 12 + 10 - 5 = 17$$

$$60 = 17 \times \text{time}$$

$$\text{time} = \frac{60}{17} \text{ hrs}$$

#### Question 51

Find the ODD one out from the given options.

A EUFV

B APBQ

C GWHX

D LMNO

Answer: D

#### Question 52

If  $[x + px^3 + qx^2 + rx + s]$  is divisible by  $(x^2 - 1)$ ,  $(x - 2)$  and  $(x - 3)$ , values of p and s are respectively:

A 5, -6

B -5, 6

C -5, -5

D -5, -6

Answer: D

#### Explanation:

$[x + px^3 + qx^2 + rx + s]$  is divisible by  $(x^2 - 1)$ ,  $(x - 2)$  and  $(x - 3)$

That means for  $x=1,-1,2,3$ ,

we have four values of the equation:-

$$1. 1 + p + q + r + s = 0$$

$$2. -1 - p + q - r + s = 0$$

$$3. 2 + 8p + 4q + 2r + s = 0$$

$$4. 3 + 27p + 9q + 3r + s = 0$$

Solving the four equations with four unknowns we get,  $p = -5$ ,  $s = -6$

**Question 53**

The maximum number of electrons present in a shell is given by the formula?

- A  $n$
- B  $2n^2$
- C  $2n$
- D  $2n + 1$

**Answer: B**

**Explanation:**

It is  $2n^2$ , where  $n$  represents no. of electrons in the outer shell. Suppose it is K-shell, the no is  $2 * 1^2 = 2$

**Question 54**

A man bought apples at the rate of 8 apples for Rs.34 and sold them at the rate of 12 apples for Rs.57. How many apples should be sold to earn a net profit of Rs.45?

- A 90
- B 150
- C 135
- D 100

**Answer: A**

**Explanation:**

CP of 1 apple =Rs.  $34/8$

SP of 1 apple = Rs.  $57/12$

Profit for 1 apple =Rs.  $(57/12-34/8) =\text{Re. } 1/2$

So to have a profit of Re 0.50 we need 1 apple.

To have a profit of Rs 45, we need 90 apples.

**Question 55**

Which of the following options will best complete the relationship given below?

- 9(541)6
- 7(633)9
- 4(???)8

- A 123
- B 321
- C 312
- D 213

**Answer: B**

**Explanation:**

Here two things are taking care of . First is ordering is always from bigger to smaller inside the bracket and only one option is showing that. And the sum of the numbers outside the brackets are multiple of the numbers of the inside of the brackets.

**Question 56**

With which sport is Roger Federer associated?

- A Tennis
- B Football
- C Chess
- D Archery

**Answer: A**

**Question 57**

Lipids are formed when glycerol combines with?

- A Peptide
- B Disaccharide
- C Fatty acids
- D Oligosaccharide

**Answer: C**

**Question 58**

What is the ratio of selling price to the cost price of an article, if there is a profit of 12%?

- A 14 : 10
- B 12 : 5
- C 32 : 25
- D 28 : 25

**Answer: D**

**Explanation:**

Let us assume C.P. = 100

Therefore S.P. = 112

Hence Ratio of SP to CP = 100

$\frac{112}{100}$  i.e 28:25

**Question 59**

Express 603% as a decimal.

- A 6.03
- B 0.0603

C 60.3

D 0.603

**Answer: A**

**Explanation:**

603%

$\frac{603}{100}$

=6.03

**Question 60**

**What is the chemical name of CaO?**

A Calcium dioxide

B Calcium sulphate

C Calcium monoxide

D Calcium oxide

**Answer: D**

**Question 61**

**Banwarilal Purohit is the present Governor of?**

A Assam

B Tamil Nadu

C Maharashtra

D Karnataka

**Answer: B**

**Question 62**

**Find the smallest fraction.**

A  $\frac{15}{19}$

B  $\frac{7}{8}$

C  $\frac{13}{6}$

D  $\frac{17}{21}$

**Answer: A**

**Explanation:**

B and C are out of the question at first glance.

B is greater than 50 percent and C is greater than 2.

Remaining are A and D.

D is  $\frac{17}{21}$  which is equal to 0.80

whereas A is equal to 0.78.

Hence is the smallest fraction

**Question 63**

**Olympic bronze medallist \_\_\_\_\_ has been appointed as the new Brand Ambassador of Bharat Sanchar Nigam Ltd (BSNL) since September 2018.**

- A Saina Nehwal
- B P.V. Sindhu
- C Neeraj Chopra
- D Mary Kom

**Answer: D**

**Question 64**

**If 'ADVENTURE' is coded as 'ERUTNEVDA', how is 'GREEN' coded?**

- A NEEGR
- B GEREN
- C NEERG
- D ENEGR

**Answer: C**

**Explanation:**

ADVENTURE is written backwards i.e. ERUTNEVDA

Therefore GREEN is coded as NEERG

**Question 65**

**Present ages of P and Q are in the ratio 6 : 7. Q is 4 years elder to P. What is the ratio of their ages after 4 years?**

- A 7 : 9
- B 5 : 8
- C 8 : 3
- D 7 : 8

**Answer: D**

**Explanation:**

Let ,P= 6X and Q= 7X.

According to the problem,

$$7X - 6X = 4$$

Therefore X=4



$P=24$  and  $Q=28$

After 4 years,  $P = 28$  and  $Q = 32$

Ratio =  $28:32 = 7:8$

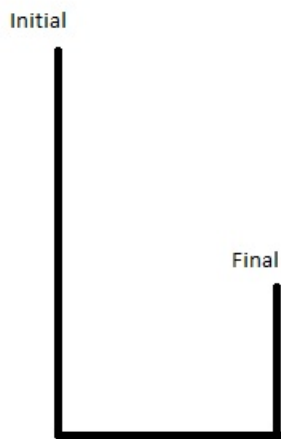
**Question 66**

Sai walks 550 m towards south direction and he then took left and walked 200 m. Again he took left and walked 200 m. Which direction is he now from the starting point?

- A South east
- B West
- C North
- D South

**Answer:** A

**Explanation:**



As per the figure , he is now south east from starting point

**Question 67**

Find the ODD one out from the given options.

- A 43
- B 53
- C 63
- D 73

**Answer:** C

**Explanation:**

All are prime numbers except 63.

**Question 68**

Complete the series.

JE, OJ, SO, VT, (...)

- A RT
- B XY
- C AD
- D LG

**Answer: B**

**Explanation:**

First of all, see the pattern

JE, OJ, SO, VT

The second alphabet of every element is increasing by 5.

Check  $E + 5 = J$ ,  $J + 5 = O$ ,  $O + 5 = T$ , and consequently  $T + 5 = Y$

The first alphabet is increasing with decreasing order from 5.

$J + 5 = O$ ,  $O + 4 = S$ ,  $S + 3 = V$  and consequently,  $V + 2 = X$

So the element becomes XY.

**Question 69**

**Find the ODD one out from the given options.**

- A 325
- B 145
- C 280
- D 226

**Answer: C**

**Explanation:**

$325 = \text{square of } 18 \text{ plus } 1$

$145 = \text{square of } 12 \text{ plus } 1$

$226 = \text{square of } 15 \text{ plus } 1$

but with 280 not any similar pattern

**Question 70**

**'Uthagamandalam' is the other name of which of these hill stations?**

- A Darjeeling
- B Kodaikanal
- C Nainital
- D Ooty

**Answer: D**

**Question 71**

In a family, the father's age is 5 times the age of one of his sons. Mother's age is 4 times the age of their other son. Difference in the parents' ages is half the sum of the sons' ages. Then:

- A They are twins
- B The sum of their ages is a multiple of 5
- C The difference in their ages is 5
- D One son is twice as old as the other

**Answer:** A

**Explanation:**

Let , Child 1's age is X and Child 2's age is Y.

And let us assume Father's age is F and Mother's age is M.

From the statements,

$$F=5X.....(i) \text{ and } M= 4Y...(ii)$$

$$\text{Again, } F + M =5X + 4Y...(iii)$$

$$\text{Again, } F - M = (X + Y)/2...(iv)$$

Adding (iii) and (iv) and then replacing F of(i),

$$\text{we get } 9X/4=9Y/4$$

Hence it is proved that , X = Y. Hence twins.

**Question 72**

Through which national park does the Ramganga River run?

- A Kaziranga
- B Corbett
- C Ranthambhore
- D Periyar

**Answer:** B

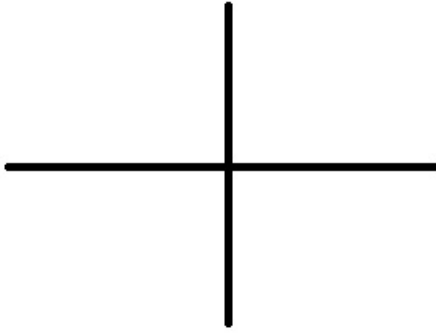
**Question 73**

A man stands 10 m in front of a large plane mirror. How far must he walk before he is 5 m away from his image?

- A 7.5 m
- B 5 m
- C 4 m
- D 2.5 m

**Answer:** A

**Explanation:**



If a person is 10 m from the mirror, then the image is formed 10 m from the mirror backwards, then the image is 20 m from the man. If the image has to be formed 5 m from the mirror, then the man is actually  $5/2$  i.e 2.5 m from the mirror. So to cover the full distance of 10 m, he has to cover a remaining distance of 7.5 m

**Question 74**

**Evaluate:**  $(\sqrt{3} - \frac{1}{\sqrt{3}})^2$

A  $2\sqrt{3}$

B  $\frac{3}{4}$

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

D  $\frac{4}{3}$

**Answer:** D

**Explanation:**

The correct option is D.

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

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

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

After squaring

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

**Question 75**

The ratio of the number of boys and girls in a school is 3 : 2. If 20% of the boys and 25% of the girls are scholarship holders, what percentage of the students do NOT get scholarship?

A 70%

B 78%

C 56%

D 80%

**Answer:** B

**Explanation:**

Lets assume , no of boys are  $3x$  and no. of girls are  $2x$ .

Now , no of boys who are holders are 20 percent of  $3x$  i.e.  $\frac{20}{100} \times 3x$  i.e  $0.6x$

Now , no of girls who are scholarship holders are 25 percent of  $2x$  i.e.  $\frac{25}{100} \times 2x$  i.e  $0.5x$

Therefore total scholarship holders are  $0.6x + 0.5x$  i.e.  $1.1x$

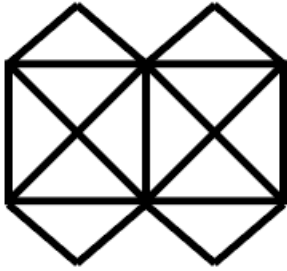
Total students =  $3x + 2x = 5x$

Therefore students who don't get scholarships  $5x - 1.1x = 3.9x$

Therefore Percentage of students who have no scholarships=  $\frac{3.9x}{5x} * 100 = 78$  percentage

**Question 76**

How many straight lines are there in the given figure?



A 15

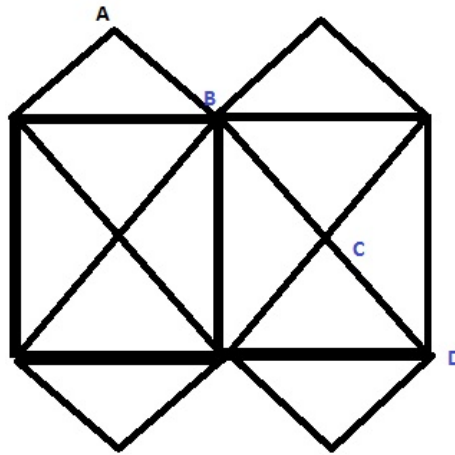
B 13

C 11

D 21

**Answer: B**

**Explanation:**



Check the number of actual straight lines.

Though it seems there are too many straight lines but in reality there are few. Check for the straight line ABCD, the straight line will be AD not AB or BC or BD or CA. The reason is simple, we are taking the straight lines that are making up the full straight line from one end to other, not in between.

Check the number of actual straight lines here.

Though it seems there are too many straight lines but in reality there are few. Check for the straight line ABCD, the straight line will be AD not AB or BC or BD or CA. The reason is simple, we are taking the straight lines that are making up the full straight line from one end to other, not in between.

#### Question 77

In which of these sports is a helmet worn?

- A Kabaddi
- B Basketball
- C Volleyball
- D Hockey

Answer: D

#### Question 78

What is the formula for the refractive index of the medium,  $n_m$ ?

- A The ratio of speed of light in medium to speed of light in air
- B The ratio of speed of light in air to the speed of light in medium

- C The sum of the speed of light in air and the speed of light in medium
- D The product of speed of light in air and speed of light in medium

**Answer: B**

**Question 79**

When a positive number is decreased by 4, it is equal to 21 times the reciprocal of the number. Find the number.

- A 9
- B 4
- C 7
- D 5

**Answer: C**

**Explanation:**

The correct answer is 7.

Let us suppose the positive number is x.

According to the question,

1. When a positive number is decreased by 4, the number becomes=  $x-4$

2. 21 multiplied by reciprocal of that number becomes  $\frac{21}{x}$

By the problem,

$$x-4 = \frac{21}{x}$$

$$x^2 - 4x - 21 = 0$$

$$x^2 - 7x + 3x - 21 = 0$$

$$(x - 7)(x + 3) = 0$$

therefore  $x= 7$  or  $x = -3$ . Since x is a positive integer, therefore x is 7

**Question 80**

**Complete the series.**

**X, U, R, O, L, (...)**

- A J
- B L
- C I
- D K

**Answer: C**

**Explanation:**

The correct answer is the letter I.

If you clearly notice the pattern is as follow:

$$X - 3 = U$$

$$U - 3 = R$$

R - 3 = O

O - 3 = L

And therefore L - 3 = I, i.e every time 3 letters are decreasing to form the next letter.

**Question 81**

**Who is the present Chairman of Central Board of Direct Taxes?**

A Sushil Chandra

B Akilesh Ranjan

C Aditya Vikram

D P.C. Mody

**Answer: D**

**Question 82**

**The reciprocal of equivalent resistance connected in parallel is the \_\_\_\_\_ of reciprocal of individual resistances.**

A Product

B Sum of squares

C Sum

D Difference

**Answer: C**

**Question 83**

**Which of the following will best complete the relationship given below?**

**XJ : VO :: HT : ?**

A GY

B GX

C FY

D FX

**Answer: C**

**Explanation:**

**First** letter of the **first group** is moved **2 steps backward** to obtain corresponding letter of the second group

**Second** letter of the **first group** is moved **5 steps forward** to obtain corresponding letter of the second group

A similar relationship will exist between third and fourth groups

XJ : VO :: HT : FY

**Question 84**

**Pulse beat is measured from?**



- A Capillary
- B Artery
- C Vein
- D Nerve

**Answer: B**

**Question 85**

**Which disease is treated by insulin?**

- A Tuberculosis
- B Cancer
- C Anaemia
- D Diabetes

**Answer: D**

**Question 86**

**Pituitary gland, one of the most important glands of our body, is located?**

- A Near the lower end of the backbone
- B Inside the chest
- C Inside the stomach
- D Inside the skull

**Answer: D**

**Question 87**

**Two pipes P and Q can individually fill a tank in 60 minutes and 40 minutes. If pipe Q alone is open for the first half an hour and then pipe P is also turned on, in how many minutes more will the tank get filled up?**

- A 4 minutes
- B 8 minutes
- C 6 minutes
- D 10 minutes

**Answer: C**

**Explanation:**

Work = efficiency  $\times$  time

Work=LCM(60,40)

=120

Quantity filled by P in 1 hr =  $\frac{120}{60}$

$$= 2$$

Quantity filled by Q in 1 hr =  $\frac{120}{40}$

$$= 3$$

Efficiency of pipe P = 2

Efficiency of pipe Q = 3

Work done by pipe Q alone for the first half an hour =  $30 \times 3$

$$= 90$$

Work done by pipe P and Q for the remaining time  $t = t \times (2 + 3)$

$$= t \times 5$$

Thus total work done,

$$90 + 5 \times t = 120$$

Solving,  $t=6$  minutes

### Question 88

Mark the right statements.

1. The lateral surfaces of a pyramid are triangles with a common vertex.
2. A pyramid is a special case of a prism.
3. Volume of a pyramid =  $\frac{1}{3}$  x base area x vertical height
4. Volume of a prism =  $\frac{1}{2}$  base area x height

- A Statement 1 only
- B Statements 1, 3 and 4 only
- C Statements 1, 2 and 3 only
- D Statements 1 and 3 only

Answer: D

Explanation:

**Pyramid:** A geometric solid with one base that is a polygon and all other faces are triangles with a common vertex.

**Prism:** A geometric solid with two bases that are congruent, parallel polygons and all other faces are parallelograms. It is referred to as a right **prism** if the faces are rectangles.

**Volume of a pyramid** =  $\frac{1}{3}$  x base area x vertical height

**Volume of a prism** = base area x vertical height

1 and 3 are the correct statements

### Question 89

Which product is obtained when coal is subjected to destructive distillation that is heating strongly in the absence of air?

- A Coke
- B Petrol
- C Diesel
- D Kerosene

Answer: A

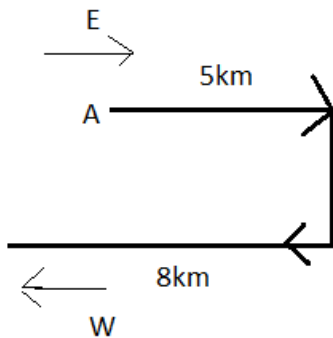
**Question 90**

Varun walked 5 km from point A and turned right two times and walked 8 km respectively facing towards west. Which direction did he start at point A?

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

**Answer:** A

**Explanation:**



**Question 91**

Find the missing number in the following series.

71, 65, 59, (...), 47, 41

- A 50
- B 51
- C 53
- D 52

**Answer:** C

**Explanation:**

53 is the correct answer

common difference is -6 in this series

**Question 92**

Which of the following is a chemical change?

- A Melting of ice to give water
- B Combustion of Liquefied Petroleum Gas (LPG)
- C Boiling of water to give water vapour
- D Dissolution of salt in water

Answer: B

Question 93

In which of the following cities was the railway stations recently renamed as Puratchi Thalaivar Dr. M.G. Ramachandran Central Railway Station?

- A Hyderabad
- B Madurai
- C Coimbatore
- D Chennai

Answer: D

Question 94

P and Q working individually can finish a job in x and y days respectively. P starts the work and they both work on alternate days and the job is finished in 7 days. If Q starts the work and with P working on alternate days. the work gets over in  $6\frac{3}{4}$  days. Compare the efficiencies of P and Q.

- A Q's Efficiency =75% P's Efficiency
- B P's Efficiency =75% Q's Efficiency
- C P's Efficiency =55% Q's Efficiency
- D P's Efficiency:55% Q's Efficiency=2:3

Answer: B

Explanation:

When P starts the work then job finish in 7 days and when Q starts the work then job finish in  $6\frac{3}{4}$  days.

Time taken by P to complete the work = x days

Time taken by P to complete the work = y days

When P starts work then P works 4 days and Q works 3 days.

$$\frac{4}{x} + \frac{3}{y} = 1 \text{---(1)}$$

(∵ work done by P + work done by Q = total work)

When Q starts work then Q works  $3\frac{3}{4}$  and P works 3 days.

$$\frac{3}{x} + \frac{15}{4y} = 1 \text{---(2)}$$

Equation (1) multiply by 3 and equation (2) multiply by 4.

$$\frac{12}{x} + \frac{9}{y} = 3 \text{---(3)}$$

$$\frac{12}{x} + \frac{15}{y} = 4 \text{---(4)}$$

on solving both equations,

$$y = 6 \text{ days}$$

from equation (1)-

$$\frac{4}{x} + \frac{3}{6} = 1$$

$$\frac{4}{x} = 1/2$$

$x = 8$  days

Total work = efficiency  $\times$  time

work is same then -

Efficiency of P  $\times$  8 = Efficiency of Q  $\times$  6

$\therefore$  P's Efficiency = 75% Q's Efficiency

#### Question 95

Which of the following States won the platinum of Web Ratna Award in Digital India Awards 2018?

- A Madhya Pradesh
- B Himachal Pradesh
- C Tripura
- D Kerala

Answer: C

#### Question 96

Mixture can be \_\_\_\_\_ in nature.

- A Both homogeneous and heterogeneous
- B Pure substance
- C Homogeneous
- D Heterogeneous

Answer: A

#### Question 97

What is the formula for the force of attraction (F) between two objects of masses M and m which lie at a distance d from each other, where G is the constant of proportionality called as universal gravitation constant?

- A  $F = \frac{G \times d^2}{M \times m}$
- B  $F = \frac{G \times d}{M \times m}$
- C  $F = \frac{G(M \times m)}{d}$
- D  $F = \frac{G(M \times m)}{d^2}$

Answer: D

#### Explanation:

The law of **gravitation** states that the **force of attraction(F)** between any **two objects** is **proportional to the** product of their **masses M and m** and inversely **proportional to the** square of the **distance (d)** between them.

The gravitational constant is the proportionality constant used in Newton's Law of Universal Gravitation, and is commonly denoted by G.

$$G = 6.673 \times 10^{-11} \text{ Nm}^2 \text{ kg}^{-2}$$

$$F = \frac{G(M \times m)}{d^2}$$

**Question 98**

**Who is the Father of Genetics?**

- A Mendel
- B Morgan
- C Castle
- D Punnet

**Answer: A**

**Question 99**

**When was the first session of the Constituent Assembly held?**

- A 1949
- B 1948
- C 1946
- D 1947

**Answer: C**

**Question 100**

**A current of 10 Ampere flows through a wire whose ends are at a potential difference of 3 Volts. Calculate the resistance of the wire.**

- A 6  $\Omega$
- B 0.6  $\Omega$
- C 0.3  $\Omega$
- D 3  $\Omega$

**Answer: C**