

SECTION II

QUESTION NO # 6

PART A:

Statement: "Her granddaughter is the only daughter of my brother."

My brother's only daughter = Ahsan's niece
That niece is woman's granddaughter
So,

The grandmother of a brother's daughter is Ahsan's mother

The woman is Ahsan's mother

PART B:

$$\text{Speed (v)} = 12 \text{ km/hr} \Rightarrow 200 \text{ m/min}$$

$$\text{Time (t)} = 8 \text{ min}$$

$$\text{Ratio of Length \& Breadth} = 3:2$$

$$\text{Perimeter/Distance (s)} = ?$$

To find Perimeter or Distance

$$S = v \times t$$

$$S = 200 \times 8$$

$$S = 1600 \text{ m}$$

Ratio between length and Breadth

$$L : B = 3 : 2$$

where,

$$L = 3x$$

$$B = 2x$$

Perimeter:

$$2(L+B) = 1600$$

$$2(3x+2x) = 1600$$

$$6x+4x = 1600$$

$$10x = 1600$$

$$x = 160$$

$$\text{Length} = 3x = 3 \times 160 = 480 \text{ m}$$

$$\text{Breadth} = 2x = 2 \times 160 = 320 \text{ m}$$

To find the Area;

$$A = L \times B$$

$$A = 480 \times 320$$

$$A = 153600 \text{ m}^2$$

Part C:

let the ten's digit = x

unit digit = $x+2$

$$\text{Number} = (10 \times \text{ten's digit}) + \text{unit's digit}$$

$$= 10x + (x+2)$$

$$= 11x + 2$$

Sum of the digits:

$$= x + (x+2)$$

$$= 2x + 2$$

According to the given condition

The number $\times$ Sum of digits = 144

$$(11x+2)(2x+2) = 144$$

$$2(11x+2)(x+1) = 144$$

$$(11x+2)(x+1) = \frac{144}{2}$$

$$(11x+2)(x+1) = 72 \rightarrow (i)$$

Applying the trial method on the given equation (i)

Taking $x = 2$

$$[11(2)+2][2+1] = 72$$

$$(24)(3) = 72$$

$$72 = 72$$

Hence,

ten's digit = 2

Unit digit = $2+2 = 4$

So,

The number is 24

Part D:

The ratio of two numbers

$$2 : 3$$

$$2x : 3x$$

Using the give LCM condition

$$2 \times 3 \times x = 6x$$

$$6x = 48$$

$$x = 8$$

If x is 8 then,

$$2x = 2 \times 8 = 16$$

$$3x = 3 \times 8 = 24$$

So, the numbers are 16 and 24
and the sum of the numbers will be;

$$\boxed{16 + 24 = 40}$$

QUESTION NO # 7PART # A

40% of a number is equal to two-third of another number

Let,

First number = x

Second number = y

$$40\% \text{ of } x = \frac{40}{100} \times x \Rightarrow \frac{4x}{10}$$

$$\text{Two-third of } y = \frac{2}{3} \times y \Rightarrow \frac{2y}{3}$$

According to the given condition

$$\frac{4x}{10} = \frac{2y}{3}$$

$$3(4x) = 2y \times 10$$

$$12x = 20y$$

$$\frac{x}{y} = \frac{20}{12}$$

$$\frac{x}{y} = \frac{5}{3}$$

$$\frac{x}{y} = \frac{5}{3}$$

Therefore,

$$\boxed{x : y = 5 : 3}$$

PART # B

S.P = Cost of 17 ball at selling = Rs 720

loss = Cost price of 5 balls = $5x$

$$\text{loss} = \text{C.P} - \text{S.P}$$

$$5x = 17x - 720$$

$$5x - 17x = -720$$

$$+12x = -720$$

$$12x = 720$$

$$x = \frac{720}{12}$$

$$x = 60$$

Therefore,

the cost price of single ball
is 60

PART # C

Father's age = x

Son's age = $y = ?$

Father is 24 years older than his son

$$x = y + 24$$

Their ages after two years

$$x + 2 = 2(y + 2)$$

Since; $x = y + 24$

Therefore,

$$(y + 24) + 2 = 2y + 4$$

$$y + 26 = 2y + 4$$

$$\begin{aligned}
 y - 2y &= 4 - 26 \\
 -y &= -22 \\
 y &= 22
 \end{aligned}$$

The present age of son is 22

PART # D

- Rashid types 32 pages in 6 hours

$$\text{Rate} = \frac{32}{6} = \frac{16}{3} \text{ pages/hour}$$

- Kamran writes 40 pages in 5 hours

$$\text{Rate} = \frac{40}{5} = 8 \text{ pages/hour}$$

Combined rate:

$$\frac{16}{3} + 8 \Rightarrow \frac{16 + 24}{3}$$

$$\frac{40}{3} \text{ pages/hour}$$

Time to type 110 pages together

$$\text{Time} = \frac{\text{Total work}}{\text{Combined rate}}$$

$$= \frac{110}{40/3} \Rightarrow 110 \times \frac{3}{40}$$

$$= \frac{33}{4}$$

$$\text{Time} = 8.25 \text{ hours}$$

Converting hours into minutes

$$8.25 \text{ hours} = 8 \text{ hours } 15 \text{ minutes}$$

Therefore,

$$\boxed{\text{Total time to type 110 pages} = 8 \text{ hr } 15 \text{ min}}$$

SECTION # I

QUESTION # 2

PART D:

Cell membrane

Structure:

Cell membrane is a double layer structure made of phospholipids. It comprises of 60-80% protein, 20-40% lipids and carbohydrates. Proteins are embedded in lipid bilayer. Fluid mosaic model explains the structure of cell membrane as a mosaic of phospholipids cholesterol molecules, proteins and carbs.

It act as a barrier between cell and the surrounding environment.

Function:

- Transport of material
- All individual molecules floating in it.
- Maintenance of concentration gradient
- Endocytosis by infolding
- Transmission of nerve impulse

Cytoplasm

Structure:

Cytoplasm is a semi-fluid, non-nuclear content of protoplasm. It is thick and semi-transparent fluid comprise of

ectoplasm and inner granular mass as endoplasm

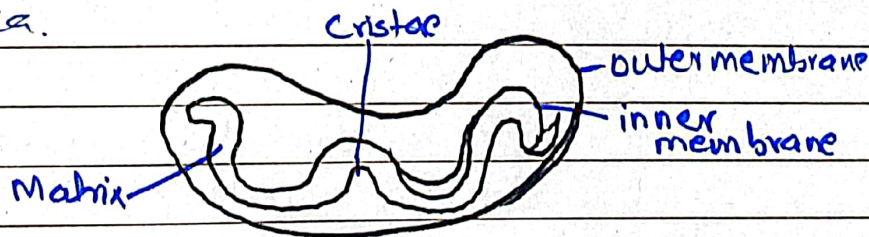
Function:

- Site of many biochemical reactions
- Provide medium for organelles to remain suspended
- Cytoskeleton provides shape and facilitate movements
- Means of transport of genetic material.

Mitochondria

Structure

Mitochondria is powerhouse of cell. It has two membranes. Inner membrane and outer membrane have intermembrane space between them. Matrix is the space within inner membrane having fluid in it and foldings to increase surface area.



Function:

- Maintaining control of cell cycle and growth
- Use Aerobic respiration to generate adenosine (ATP)
- Provides the source of chemical energy