Dos and Don'ts for the General Science & Ability Paper

Hi there — you've prepared well!
Remember, knowing the content is one thing but presenting it in the paper exactly as required is another. Here are a few key points to keep in mind:

1. For a 5-mark part, aim to write at least 2 and at most 3 sides of the answer sheet. Often, a question has two or three parts, and the marks are divided accordingly — so address each part fairly.

2. Manage your time wisely — you have about 95 minutes total in this question, which comes down to around 8 minutes for each 5-mark part. Stick to this to avoid rushing later.
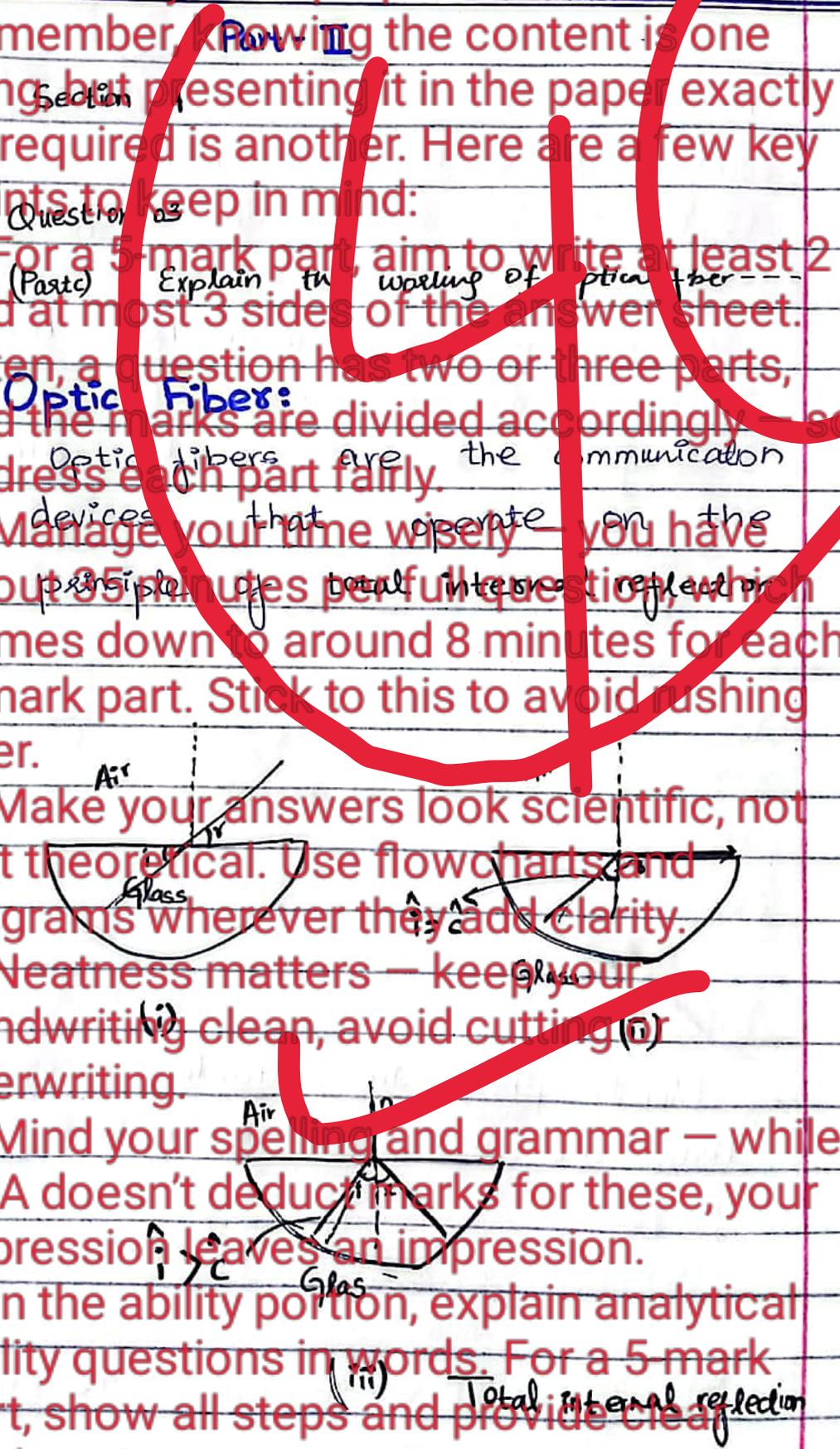
3. Make your answers look scientific, not just theoretical. Use flowcharts and diagrams wherever they add clarity.

4. Neatness matters — keep your handwriting clean, avoid cutting or overwriting.
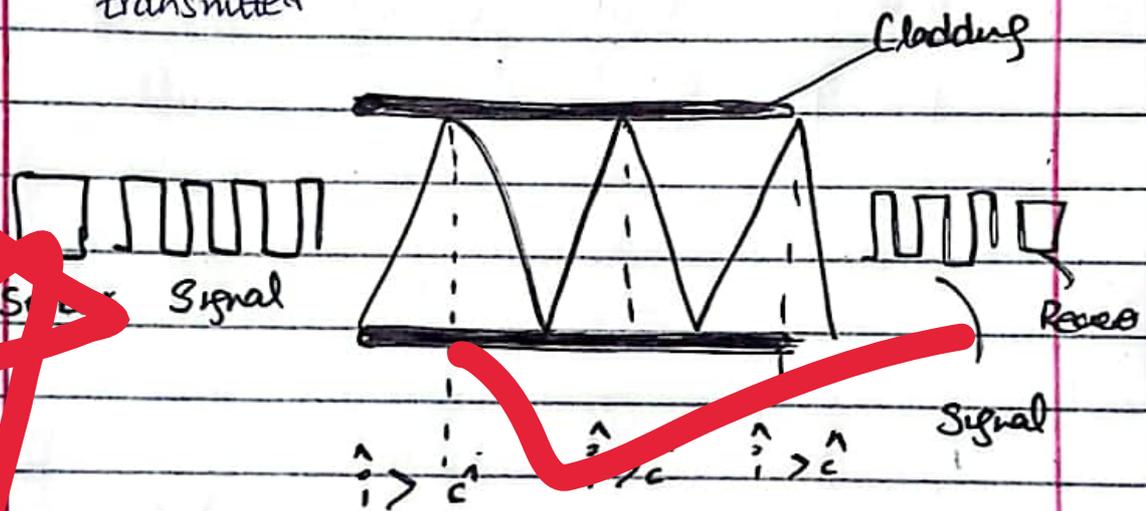
5. Mind your spelling and grammar — while GSA doesn't deduct marks for these, your expression leaves an impression.

6. In the ability portion, explain analytical ability questions in words. For a 5-mark part, show all steps and provide clear explanations.

Good luck for CSS 2026 — you're going to ace it, in sha Allah! 🌟

Part-II

Section

Question 03

(Part c) Explain the working of optical fiber ---

Optic Fiber:

Optical fibers are the communication devices that operate on the principle of total internal reflection, which

(i)

(ii)

(iii) Total internal reflection

Optical fiber works on the principle of total internal reflection. Total internal reflection always occurs when angle of incidence is greater than the critical angle. Due to the total internal reflection, minimum energy is lost and signals are transmitted

Signal

Cladding

Receo Signal

$i > c$ $i > c$ $i > c$

Mobile Phone:

Mobile phone are portable devices that are used for communication purposes.

Working of Mobile Phones:

The flow-chart below tends to explain the working of mobile phone

```
┌─────────────────────────────────┐
│  Words / Voice   of Individual  │
└─────────────────────────────────┘
                 ↓
┌─────────────────────────────────┐
│   Voice picked up  by           │
│   Microprocessor of Phone       │
└─────────────────────────────────┘
                 ↓
┌─────────────────────────────────┐
│   Microprocessor sends          │
│   it  to antenna of             │
│   phone                         │
└─────────────────────────────────┘
                 ↓
┌─────────────────────────────────┐
│       Digital Signals           │
└─────────────────────────────────┘
                 ↓
┌─────────────────────────────────┐
│  Can be Transferred through Electro │
│   magnetic waves   but          │
│   donot support long            │
│   distances.                    │
└─────────────────────────────────┘
```

Introduction of Cellular Technology:

Different cells are used to transfer the signals.

Each cell consists of tower and frequency slot. Tower in cell converts electronic magnetic waves into light pulses which are sound into destination tower that modules it again in form of electromagnetic

(Pactd)

Food Additives:

Food Additives are referred as additional ingredients that are usually added to food.

They are added to change or enhance the color or taste of food usually.

Example:
 (i) Flavoring Agents
 (ii) Food Colors

Food Preservatives

Food preservatives refers to addition of certain substances or introduction of different techniques to lower the chances of food contamination.

Example:
 (i) Addition of Salt / Salting technique
 (ii) Addition of Vinegar in food

Food Adulteration

Food adulteration refers to deliberate addition of the

unnecessary materials within food to maximize the economic output.

Example

(i) Adding of water in milk.

Food Contamination

Food contamination refers to the presence of different harmful microorganism within the food, that spoil the food.

Example

(i) Presence of bacteria within milk

(Part b)

Ceramics:

Ceramics are the hard and brittle materials that are made through inorganic substances

usually ceramics are made through the process of smelting

Properties of Ceramics

(i) Ceramics are hard

(ii) They are brittle

(iii) They have high melting point

(iv) Present in variety of shape and size.

Application of Ceramics

There are multiple applications of ceramics and they are employed in wide industries

(i) Ceramics are widely used to make pottery and utensils

(ii) Ceramics are used in making insulators

(iii) They are used in aerospace

(iv) Ceramics are used to make tiles

(Part a)   ~~H~~   How

Global Warming can be reversed?

Introduction:

Global warming refers to increase in the average temperature of the Earth. This increased global warming is responsible for climate change. That is why currently the
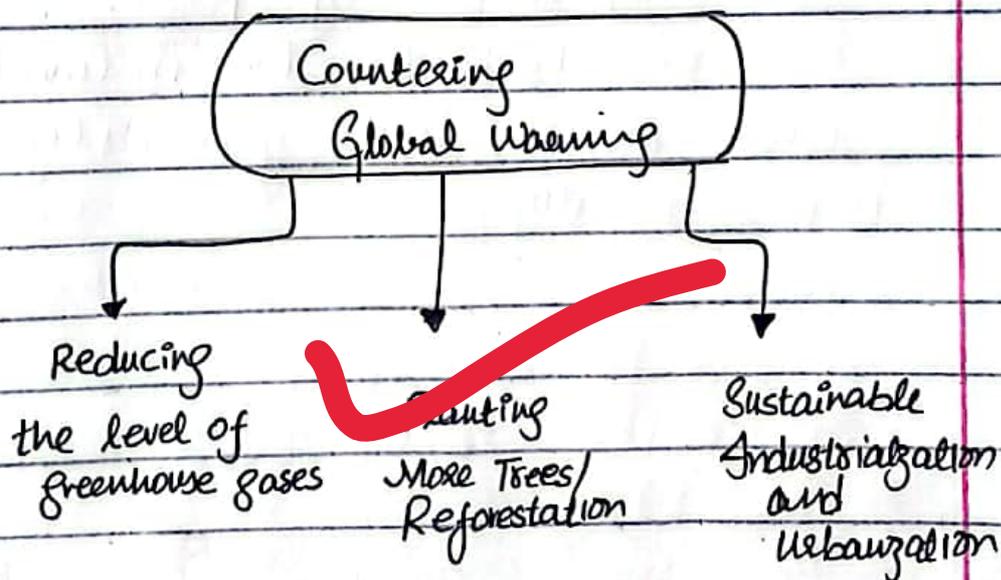
focus of whole community is to reverse the global warming.

How Global Warning Can Be Reversed?
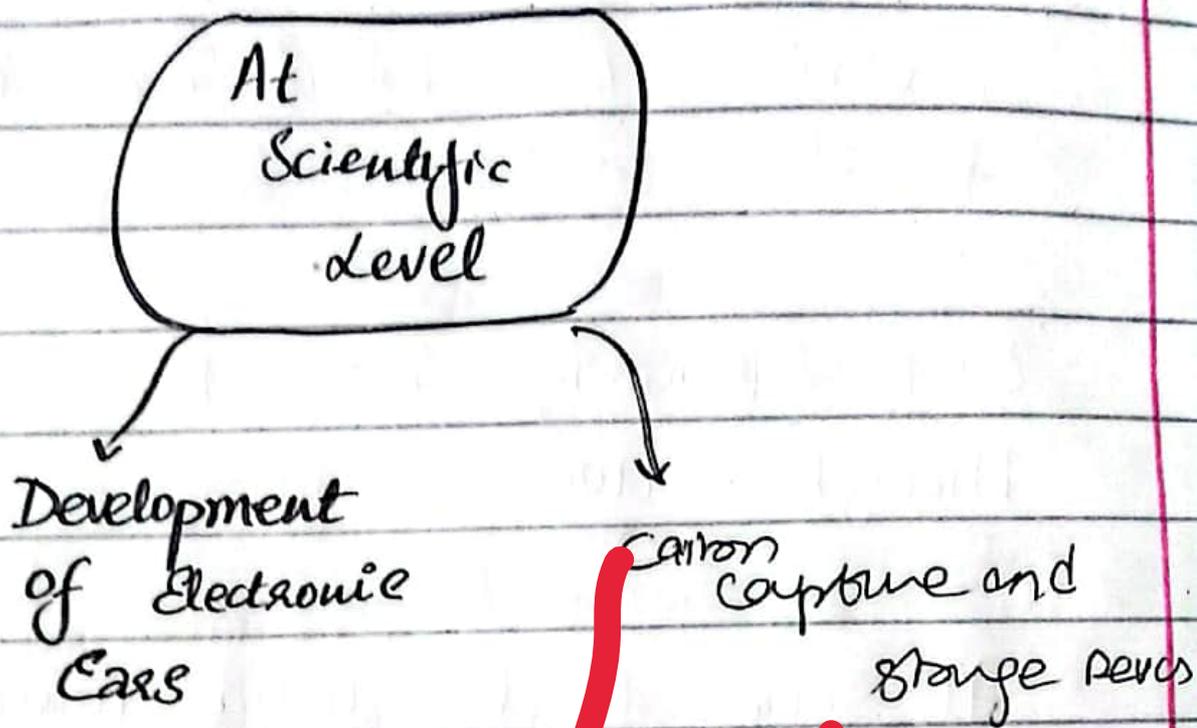
Global Warming can be reversed through two ways

(i) At Source Level:

At source level, global warming can be reversed by limiting the presence of sources responsible for its spread.

```
        Countering
        Global Warming
```

Reducing the level of greenhouse gases

Planting More Trees/ Reforestation

Sustainable Industrialization and Urbanization

(ii) At Scientific Level:

Development of scientific instruments and technologies to limit the global warming

At Scientific Level

Development of Electronic Cars

Carbon Capture and Storage Devices

Conclusion

Thus, global warning and be reversed through aforementioned strategies and the temperature of planet can be resorted to the normal level as it was formerly and naturally.

Question 02

Part a)

Structure of Universe According to Big Bang Theory

Big Bang Theory given by George Lemaitre has explained the structure of universe in the detail.

(i) **Formation of universe and Its Structure:**

Universe was made as the result of explosion. Due to the explosion universe expanded from a single atom to the whole universe. As the result of explosion matter and antimatter was formed, which initially destroyed eachother. Few of the matter survived and they combined. When proton and neutron were made. Further nop, in temperature lead creetion of electron and then fusion between

Hydrogen forming the helium atom

Structure of Universe:
According to theory the structure of universe is expanding universe model or also referred as open model. This means that universe will continue to expand in the future.
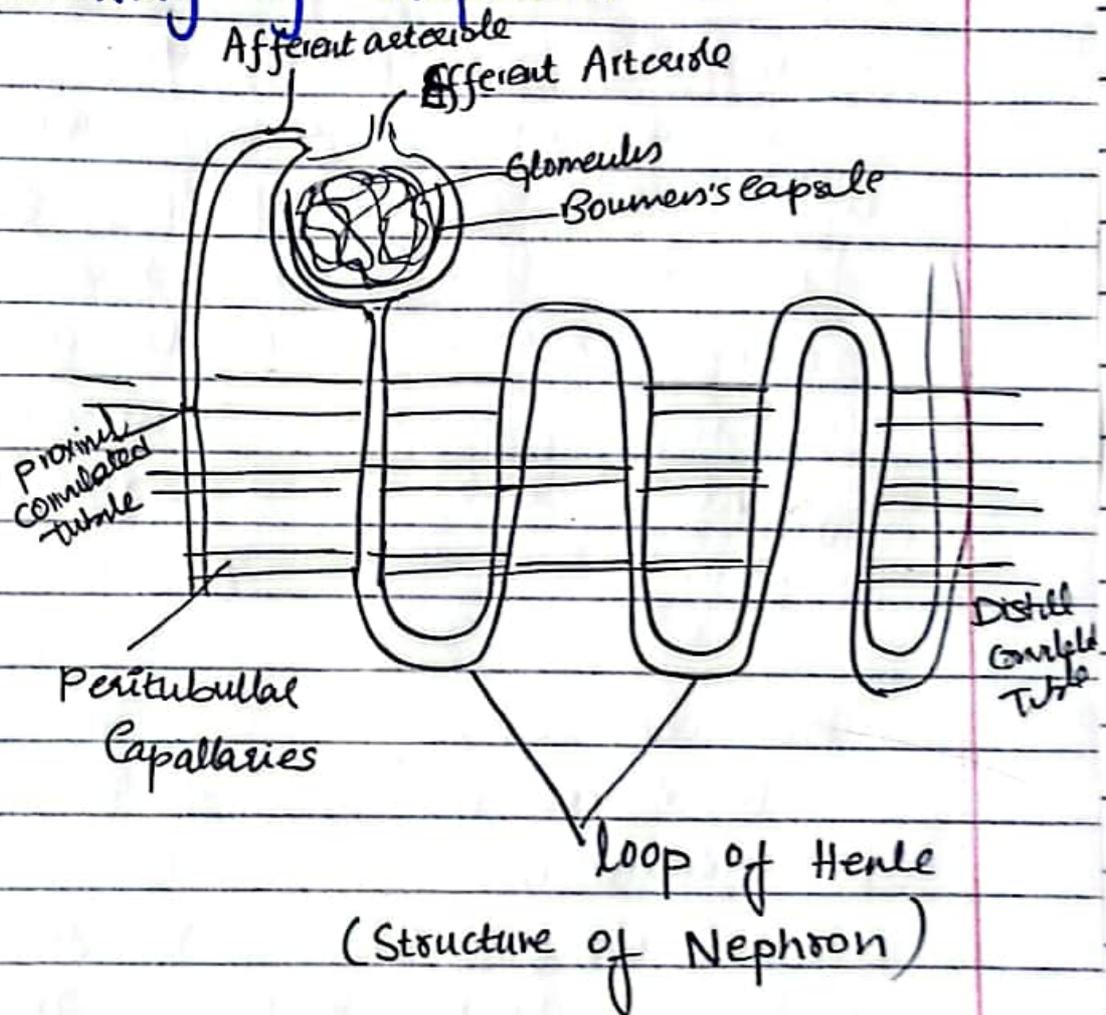
(Part b)

Urinary System:

Urinary system refers to the system of human body that is responsible for removal of extra and toxic water from the human body.

Components:
(i) Pair of Ureter
(ii) Kidney
(iii) Urinary Bladder

Working of Nephron:

(Structure of Nephron)

Nephron is the structural and functional unit of kidney. The blood enters nephron through afferent arteriole. Here ... the glomerulus is the bunch of capillaries that help in diffusion of blood and removal of the waste. The waste moves from the glomerulus to the **ascending** and **descending**

loop of henle. Under the capallaries the peritubular capallaries are present. Though where the reabsorption occurs. From the interaction between proximal convulutaried, distile and the loop of henle. Throng efferent arterisle blood exits the nephron.

(Part c)

UnBalenced Diet:

Unbalanced diet is antithetrical to balenced diet. It means it is a diet in which an individual consumes wrong proportion of different food items.

Impacts of Unbaleneed Diet on Healthy Living:

Due to the unbalenced diet there are certain adverse impacts on the human health

1) Person can experience ~~body Mass Index issues~~
   (i) Obesity and Overweight
   (ii) Underweight

(iii) unbalanced diet lead to presence of certain deficiencies in the body.

(iv) Vital organ failure - including heart - can be related to the unbalanced dietary intakes

(v) The lipid-profile test of individual can be disturbed though unbalanced diet

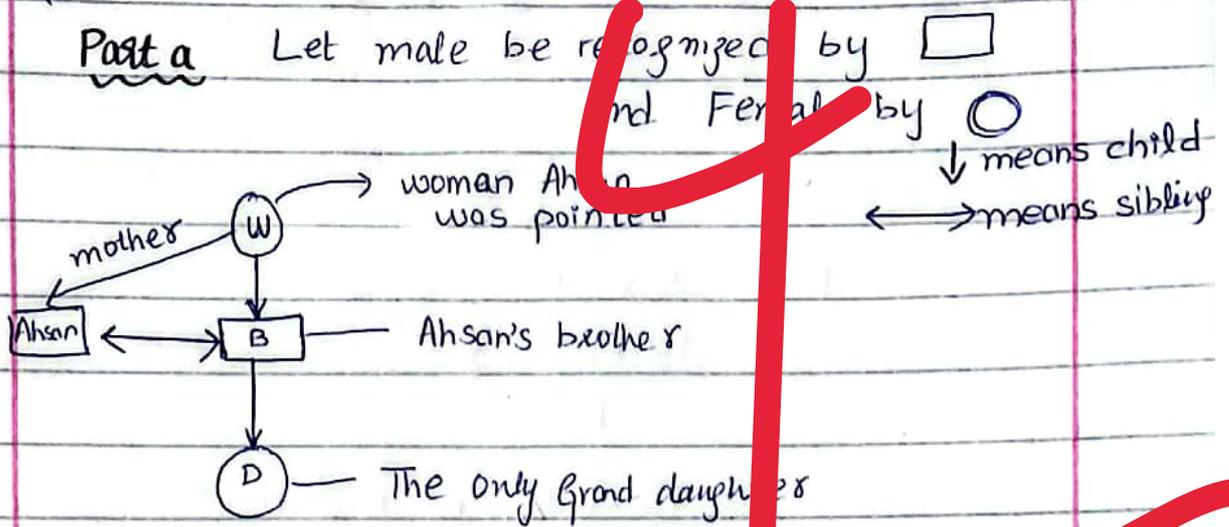(vi) Weakness and absence of vital minerals can be due to unbalanced diet

Part (d)

Organ	Structure	Function
Cell Wall	Cell wall is the outermost part of plant cell. It has definite shape. It is made up of cellulose in plant and peptidoglycan in other organism	• It provides protection to internal cellular organ • It ...

Organ	Structure	Function
Cell Membrane	It is semi permeable membrane that is the foremost structure in animal cell.	It is responsible for diffusion of the gas, inside and outside cell
Cytoplasm	It is like a gel or matrix that is found in the protoplasm	• Reactions inside the cell takes place in cytoplasm • Cell organelles are present within cytoplasm
Mitochondria	It has Outer membrane, inner member and cristae.	• It is the power house of cell • Provides energy to cell in form of ATP

(Q·6)

Part a

Let male be recognized by $\square$ and Female by $\bigcirc$

$\downarrow$ means child

$\longleftrightarrow$ means sibling

woman Ahsan was pointed

Ahsan's brother

The only grand daughter

It becomes evident that woman is the mother of Ahsan.

Part b

Length : Breadth

3 : 2

$$\frac{L}{B} = \frac{3}{2}$$

$$L = \frac{3}{2} B$$

Speed of man = km/hr = $\frac{12 \times 1000}{60 \times 60} = 10$ ms^{-1}

Time = 8 minutes

Area of Park = ?

Distance = S × T

= 10 × 8

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

$$D = S \times T$$

$$= \frac{12 \text{ km}}{h} \times 8$$

$$= \frac{12 \times 1000 \, m}{60} \times 8 \, \text{min}$$

·Distance $= 1600 \, m$

$$P = 2(l + w)$$
$$1600 = 2(3n \times 2n)$$
$$1600 = 2(6n^2)$$
$$\frac{1600}{2} = 6n^2$$
$$800 = 6n^2$$
$$\frac{800}{6} \,\frac{400}{3} = n^2$$
$$400$$

R W ?? ?

Part c

LCM = 48

$n:y = 2:3$

$n+y = ?$

$2n \times 3n = 48$

$n(6) = 48$

$n = \dfrac{48}{6}$

$n = 8$

$2n + 3n = 2(8) + 38$

$16 + 24 = 40$

Sun of $w = 40$

Question 07

(A)

Let first number $= x$

Second number $= y$ $\quad x : y = ?$

According to given condition

$$\frac{4\cancel{0}}{10\cancel{0}}(x) = \frac{2}{3}(y)$$

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

$$\frac{x}{y} = \frac{\cancel{2}^{1}}{3} \times \frac{10}{\cancel{4}2}$$

$$\frac{x}{y} = \frac{\cancel{10}^{5}}{\cancel{6}\,3}$$

The ratio of first number to second number is $5 : 3$

(B)

Sale Price $= 720$

Balls $= 17$

Loss $=$ Cost Price of 5 balls

Cost Price $= ?$

(c) Age of Son $= u$

Age of Father $= u + 24$

According to given condition,

$$(u + 24) + 2 = 2u$$

$$u + 24 + 2 = 2u$$

$$u + 26 = 2u$$

$$26 = 2u - u$$

$$\boxed{u = 26}$$

The current age of son is **26** years.

(d)

Time taken by Rashid $= 6$ hours

Pages Typed $= 32$ pages

$$Power = \frac{Work}{Time} = \frac{\overset{16}{\cancel{32}}}{\underset{3}{\cancel{6}}}$$

Time taken by Kamoah $= 5$ hours

Pages Typed $= 40$ pages

$$Power = \frac{Work}{Time} = \frac{\overset{8}{\cancel{40}}}{\cancel{5}} = 8$$

Time taken by Both $= ?$

Work $= 110$ page

$$P = \frac{W}{T}$$

$$\left(\frac{16}{3} + \frac{8}{1}\right) = \frac{110}{T}$$

$$\frac{16+24}{3} = \frac{110}{T}$$

$$\frac{40}{3} = \frac{110}{T}$$

$$40\,T = 330$$

$$T = \frac{330}{40}$$

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

$$T = 8.2$$