# SECTION - I

QUESTION NO. 2
(PART NO. A)

Introduction :-

Human Kidneys are important organ of human body that faciutates the excretaly system. It is responsible for urine formation. Humans have two kidneys.

Kidney :-

Kidneys are connected to renal artery from which blood enters the kidney. Ureters are tubes through which urine leaves the kidney and it is temporarily stored in urinary bladder.
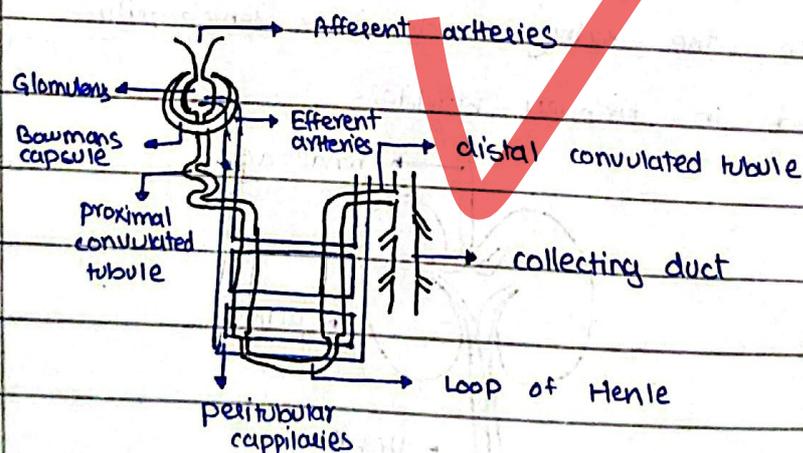
renal artery

kidney

Ureters

urinary bladder

Urethra
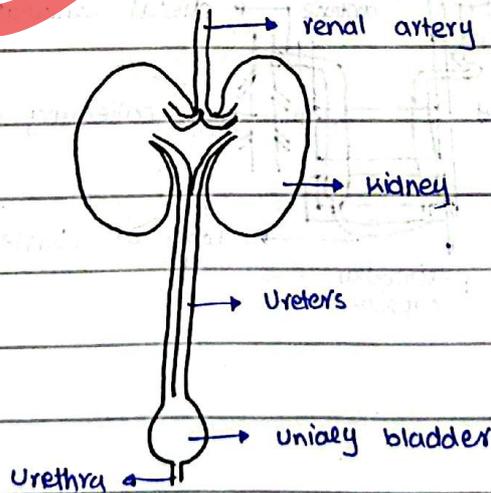
Kidney consists of nephrons where urine formation takes place.

renal arter
renal vein
ureter
nephron
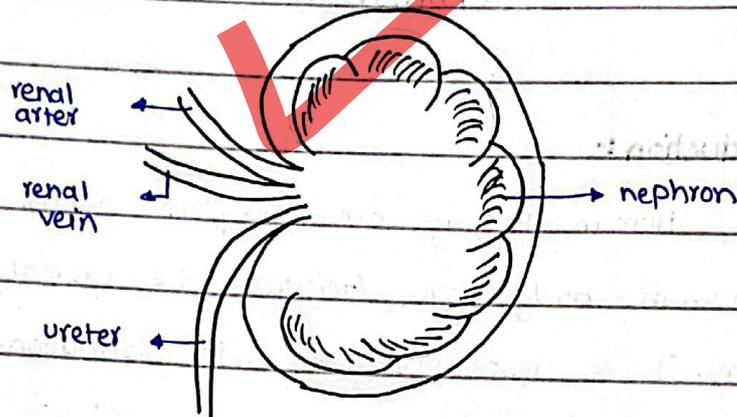
There are approximately 1 million nephrons in one kidney.

Nephron: Urine Formation:-

Afferent arteries
Glomulers
Bowmans capsule
Efferent arteries
distal convulated tubule
proximal convulated tubule
collecting duct
Loop of Henle
peritubular cappilaries

Blood enters nephron through different artery. In glomerulus, salt, water and minerals are reabsorbed as there a cappilaries. Bowman's capsule holds and supports glomerulus. The remaining is called filtrate which travels to proximal convuluted tubule. From there it travels to collecting duct. Collecting duct takes it to ureters to urinary bladder. Finally urine leaves the body through urethra.

──────────(PART NO. B)──────────

Introduction:-

Solar system is located in milky way galaxy. It is gravitational force of Sun that keeps the planets in orbit.

Components of solar System:-

Solar system consists of the sun, 8 planets and moons.

The Sun :-

Sun is located in the center of solar system. It is a star. It provides heat and light. Due to its gravitational force planets revolve around it.

Planets :-

Solar system consists of eight planets. Every planet has its own orbit and revolves around Sun. Size of planets is different from each other. Among all, only Earth is sustainable for life. The names of planets are :-

1) Mercury
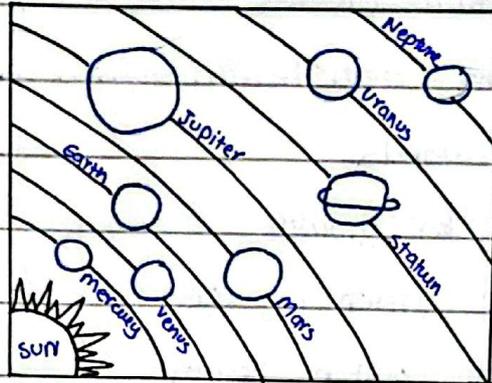2) Venus
3) Earth
4) Mars
5) Jupiter
6) Satrun
7) Uranus
8) Neptune

Moon :-

Moons are natural satellites orbiting around planets. The number of moons of each planet are different. Earth has 1 moon, Mars has two moons.

solar system

──── (PART NO·C) ────

Balanced Diet :-

Balanced diet consists of food consumption that is required by human body. It consists of 50% carbohydrates, 40% proteins and fats and 10% minerals and vitamins. Balanced diet includes 1800 - 2400 calories in a day.

Importance of Balanced Diet :-

Balanced diet is important for human body to function normally. It maintains :-

1) Brain and muscle health

2) Hair and skin

3

3) Prevents from diseases

4) Bone and teeth health

5) Healing wonds

6) Essential for growth

7) Maintains vision /eyesight

8) Reproductive system health

9) Maintains hormone balance

——————(PART NO·0)——————

Cell :-

Cell is the building block of animal and plant body. Generally, cells consist of nucleus, mitochondria and cell membrance. Cells make tissue and tissues together make muscles and organs. There are different types of cells:-

1) Plant cell:

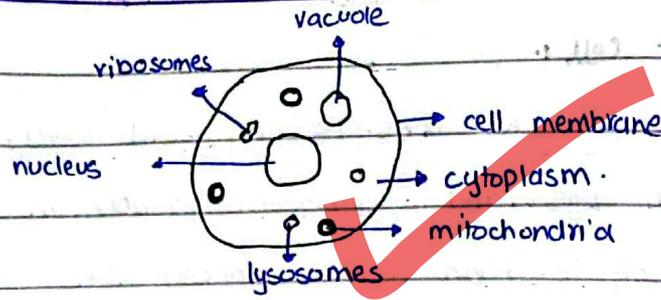2) Animal cell

3) Micro-organismic cell.

Plant Cell :-

Plant cell consists of cell wall. It has a large and permanent vacule in centre of it. Plant cells consist of chloroplast, plastids, tonoplast. Nucleus is present at a side of plant cell. These cells are generally long and square/ rectangular in shape.

nucleus → [diagram] ← cell wall
vacuole ← [diagram] ← cell membrane
mitochondria ← [diagram]
cytoplasm   chloroplast
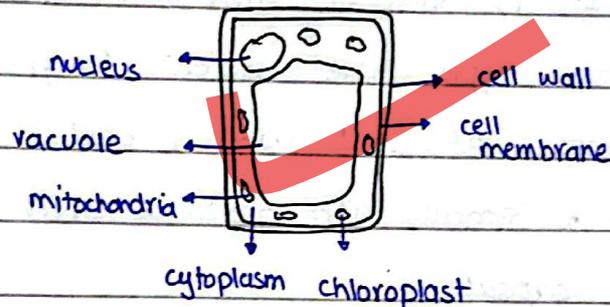
PLANT CELL

Animal Cell :-

Animal cell is a round shaped cell. It consists of nucleus in center. Unlike plant cell, animal cell has small and temporary vacuole. Cell wall is absent in animal cell. It has mitochondria, lysosomes and ribsomes. Chloroplast, plastids and tonoplast is absent in animal cells.

vacuole
ribosomes
cell membrane
nucleus
cytoplasm.
mitochondria
lysosomes

Animal Cell

Micro-Organismic Cell :-

It is found in environment and has multiple types like bacteri, fungi. It consists of cell wall, cell membrane, small ribosomes, DNA and cell capsule.

cell capsule
ribosome
cell wall
mitochondria
cell membrane
DNA

Micro-Organismic cell

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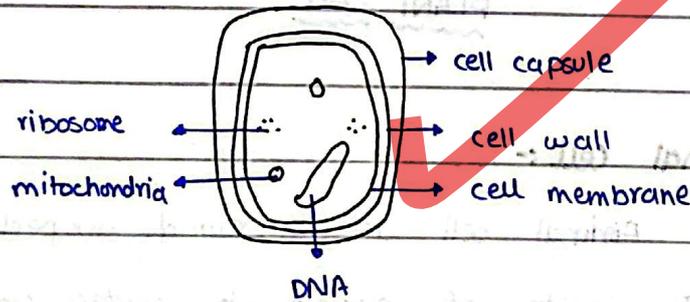
Disaster Management :-

Disaster management is a systematic process of mitigating disaster loss through planning and preparedness. This process requires resources and awareness. Pakistan is prone to climate induced disasters.

Weakness in DMS in Pakistan :-

There are multiple factors that lead to weak disaster management in Pakistan. Few are given below:-

1) Lack of awareness among general public.
2) Inefficient drainage system
3) Unplanned urbanization on river beds.
4) Under developed areas where resources are difficult to deliver.
5) Implementation of policies of NDMA need to be efficient
6) Urbanization on agricultural land which reduced water absorption.

Way - Forward :-

These weaknesses can be improved by following steps:-

1) Implemetation of NDMA policies to be made efficient.

2) Planned Urbanization to avoid it on river beds

3) Construction of dams and canals to increase water storage and avoid heavy floods.

(PART NO. B)

Solid Waste Management :-

Solid waste management is a systematic process of handling waste from it gneration point (collection), to its recovery and then disposal.

There are three main steps in solid waste management :-

1) Collection

2) Recovery

3) Disposal.

Importance of SWM:

Solid waste management is an important process. If not done efficiently it can lead to different environment and health issues. Few importance is ~~writt~~ are:

1) Collection from generation point so that waste is not placed in streets and roads.

If not collected then:-

   i) It can decrease the aesthetic value

   ii) Decrease tourism

   iii) Increase risk of diseases

2) Recovery is done to seperate organic, recyclable and electronic waste for proper disposal.

3) Disposal is required to reduce harmful waste from environment and risk to diseases.

———— (PART NO.C) ————

Bio-fuels:-

Bio-fuels are renewable energy source

made from organic matter : biomass. The organic matter is like plant, algae, or animal waste. This is alternative for fossil fuels. It is used for heating and electricity.

Importance of Bio fuels:-

Following are the important factors of bio-fuels:-

1) It reduces green-house gases (GHG's)
2) It reduces pollution
3) It can be used instead of fossil fuels
4) Helps in reducing organic waste
5) Bio-fuels are biodegradable and non-toxic
6) It is a renewable energy source

Bio-fuels can mitigate climate change risk, provide energy security, enhance economic development. This is because it is renewable and not finite like fossil fuels.
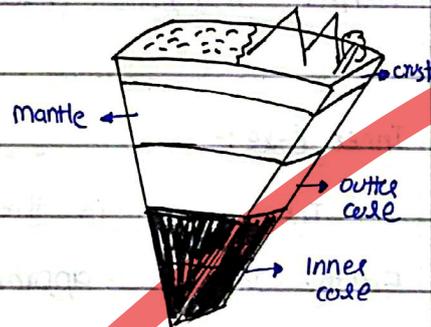
Earth :-

Earth is a planet of solar system that supports life with its environment and structure.

Internal Structure of Earth :-

Earth has different layers in its internal structure. These layers are :-

1) Crust
2) Mantle
3) Outter core
4) Inner core

The Crust :-

Crust is outter most layer that is 100 km deep. It is rocky layer. Living organisms live on this layer. Atmosphere is present on this layer.

Mantle :-

Mantle is the second layer of Earth. It streches from 100 km to 2900 km in Earths surface. It is rocky layer.

Outer core :-

Outer core is third layer of Earth. It is from 2900 km to 5100 km inside Earth. It is a liquid layer which creates Earth's magnetic field.

Inner core :-

Inner core is the middle of the Earth. It is approximately 6378 km deep. It is a solid sphere of iron and nickel. It is solid due to pressure.

X————————————————X

QUESTION NO. 7

(PART NO. A)

Given Data :-

No. of women = $\dfrac{\text{No. of men}}{2}$ (stop 1)

on stop no. 2 :-

10   men   leave

5   women   enter

No. of women less = 10 + 5

= 15

So,

No. of mem = 15 × 2

= 30 men

Total number of people entered bus = 30 + 15

= 45 people.

45 people entered bus at Islamabad, from which 30 were men and 15 were women.

_____(PART NO. B)_____

KEN WOOD → R R G W I C L

PA NASO NIC → W N G A M C V P P

_____(PART NO. C)_____

40% of x = $\dfrac{2}{3}$ of y

40% × x = $\dfrac{2}{3} y$

$\dfrac{40}{100} x = \dfrac{2}{3} y$

40 × 3 x = 2 × 100 y

120x = 200 y

$\dfrac{x}{y} = \dfrac{200^{10}}{120^{6}}$

$\dfrac{x}{y} = \dfrac{5}{3}$
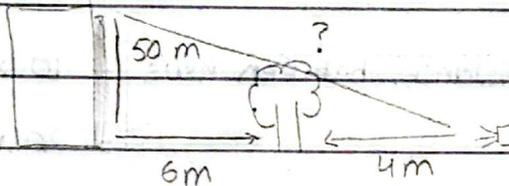
$x : y$ = 5 : 3   ✓

Distance b/w tree and light = 4 m

Shadow of tree = 50 m

Distance b/w building and tree = 6 m

Height of tree = ?

Now,

$$\frac{\text{Height of tree}}{\text{distance of light}} = \frac{\text{Shadow of tree}}{\text{total distance}}$$

$$\frac{\text{Height of tree}}{4} = \frac{5\cancel{0}}{1\cancel{0}}$$

Height = 5 × 4

Height of tree = 20 m

X————————————————X

QUESTION NO.8

(PART NO. A)

rows = 10

columns = 12

Distance between two tree = 2 m

Distance from boundary = 1 m

Total Distance between rows = 10 × 2m

$\qquad$ = 20 m

Distance from front and back boundary = 1m + 1m

$\qquad$ = 2m

Total length of garden = 20 m + 2m

$\qquad$ = 22 m

The garden is 22 m long.

(PART NO. B)

Sitting position of A, B, C, D, E. is

$\qquad$ E B A C D

left side ← $\qquad$ → right side

A is sitting in the middle of the bench.

$$\frac{1}{3} \text{ of } \frac{1}{4} \text{ of } x = 15$$

So to find x :-

$$\frac{1}{4} x = 15 \times 3 = 85$$
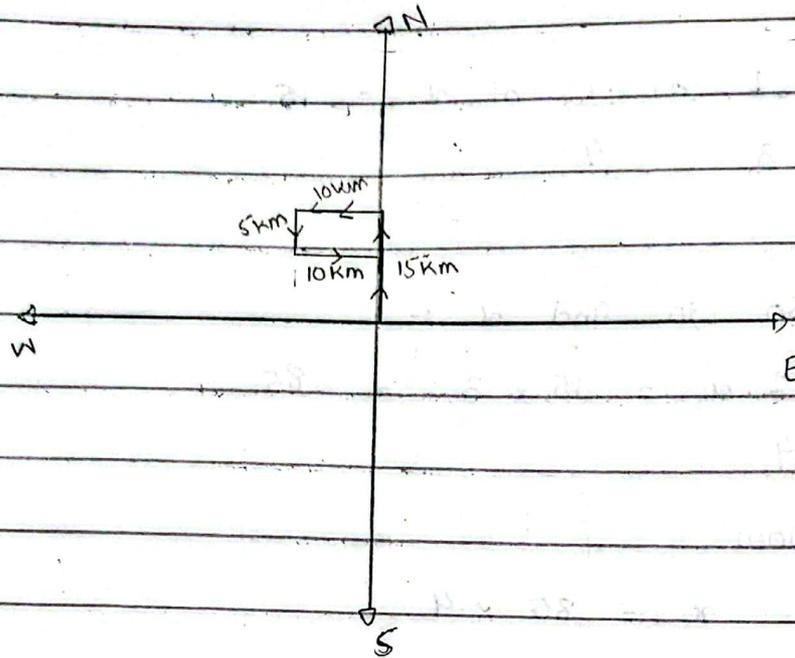
Now

$$x = 85 \times 4$$
$$x = 340$$

Now :-

$$\frac{3}{10} x = \frac{3}{10} \times 340$$

$$\frac{3}{10} x = 102$$

So, three-tenth of that number is 102.

a) He is in North from his house.

b) He is 10 km away in North from his house.

c) He covered 40 km in total.

X —————————————— X