PART II
(SECTION A)

Q. NO. 2 (a)

30

General Instructions

1. Give numbering to headings
2. Do not write lengthy paragraphs. Write medium sized paragraphs with headings.
3. Do not use table for comparison and contrast questions.
4. Draw figures/diagram/flowchart where needed.
5. Start new question from fresh page.
6. Write unit of the answer in ability section.
7. Explain mathematical steps and the reasoning for better score.
8. Change colour scheme for references to give them more visibility.
9. Manage time well.
10. Wide page borders are discouraged. Should be reasonable.
11. Avoid writing wrong references.
12. Give more weightage to expressedly asked part/s of the question.

(i) **Circulatory system:** Human organ system which helps in circulation of blood throughout the body of parts is called as human circulatory system. It composes following important components

(ii) **Heart:** Heart is the pumping organ and most vital part of circulatory system which pumps the blood into blood vessels.

(iii) **Blood vessels:** These are network of small tubes extended throughout the body and help in circulation. It consists of three types

- **Arteries:** These contain oxygenated blood and circulate it from heart to whole body.
- **Veins:** They transport de-oxygenated blood from body again to heart

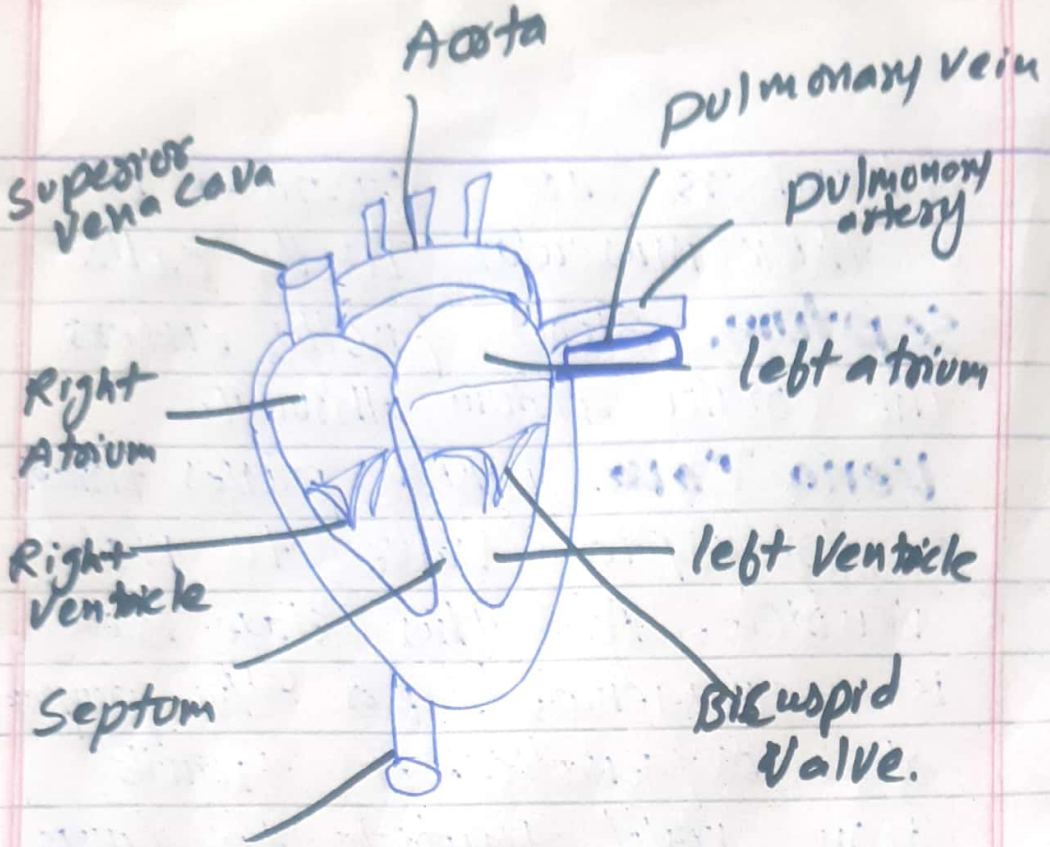
- **Capillaries:** These are most thinner blood vessels which carry blood to each cell.

(iii) **Blood:** This is also the important part and is circulating fluid, Red in colour. It consists of different type of cells such as Erythrocytes (~~white~~ Red blood cells), Thrombocytes (plate lets) and leukocytes (white blood cells). All these help in transport of oxygen, repairing of wounds, and providing immunity to the body respectively.

## Role of Human heart in Circulatory system:

Human heart plays a pivotal role in human circulatory system. It consists of four chambers. The two upper layers are called **Atria** while ~~the~~ two Lower chambers are known as **Ventricles**. All these

chambers are separated by a thick muscular wall called **septom.** Blood firstly enters the right atrium through **vena cava** which passes through a tricuspid valve to right ventricle. At this stage blood is deoxygenated. For the purpose of oxygenation, it travells from right ventricle to lungs through a **pulmonary artery** ~~vein~~. ~~After~~ once, it gets oxygenated, it travels through **pulmonary vein** to left atrium. Left atrium contracts and pushes the blood via **bicuspid valve** into Left ventricle. After contraction of ventricle, blood passes through **semilunor vessicles** and reaches **Aorta.** Aorta then transports the blood to all parts of the body by the help of blood vessels.




(b)

## Carbohydrates:

These are hydrated carbons which contain Hydrogen and oxygen with a ratio similar to water ($H_2O$).

e.g. Glucose ($C_6H_{12}O_6$), Sugar ($C_{12}H_{22}O_{11}$) Maltose, Galactose etc. starch and Glycogen etc.

## Classification:

Carbohydrates can be classified into following three main

Categories owing to their abundance.

## (1) Monosaccharides:

This is the type of carbohydrate which contains one sugar unit and carbon atoms ranging from 3 – 6. These are completely soluble in water and give a sweet taste. Main examples are glucose, ~~Maltose~~ sucrose, Galactose triose, tetrose, pentose, etc.

## (2) Oligosaccharides:

This type of carbohydrates possesses sugar units ranging from two to Nine. Therefore number of carbon atom is more than 10. They are less or sparingly soluble in water and have less sweet taste. Examples include:

disaccharides = Maltose, Lactose
Trisaccharides = Maltotriose.
Tetrasaccharides, etc.

(3) **Poly Saccharides:**

It is the most abundant form carbohydrates which consists of several sugar units — mostly greater than 10. They are insoluble in water. Therfore are t sweetters.

e.g. Starch in plants
Glycogen in animals
apart from this Chitin, Lignin and Amylopectin are also the examples of Poly Saccharides.

Diagram?

(C)

a **Water pollution:**

When fresh water is Contaminated by various means, so that it is not potable to drink, is called as Water pollution.

c **Causes:**

Water pollution is caused by various activities, following are the main causes.

- **Domestic waste:**

When Domestic waste is

eliminated in sewerage system it causes water to pollute.

- **Industrial waste:**

Many industries produce and eliminate some heavy metals such as lead, chromium, and Mercury etc These are carcinogenic and also impact wild life when e eliminated in fresh water source.

- **Nuclear wast:**

Nuclear reactors produce a wide range of radio active waste containing radioactive materials. These pollute the water when are excreted to a water reservoir

## (3) Effects:

Following are the main effects of water pollution

- **Water born diseases**

When water is polluted it becomes a source of Causing diseases in human kinds Because polluted water acts as

a breeding ground for various insects including Mosquitoes and Dengue, etc such waters cause following diseases: Hepatitis, Tuberculosis, Jaundice, Diarrhoea and Cholera, etc

- **Producing dingy smell:** polluted water, especially water from sewerage system causes a dingy smell in the surrounding. That is too pungent that people feel suffocated while passing there.

(d)

## Liver as a Chief Chemist:

Liver is the second most largest organ of human body, after skin. It plays a vital role in metabolism of the body. Similarly, it is also called as the chief chemist of the body because it involves many a reaction which bless it this name. For instance

Liver helps in urea formation via ornithine or urea cycle. It helps in detoxification of various drugs and toxic materials. Another most important function of liver can be witnessed by the presence of gall bladder — The greenish fluid present on liver. Gall bladder contains a greenish juice which is comprised of salts and other lipid digesting materials. This helps in digestion of food as the secretion of bile juice occurs in duodenum.

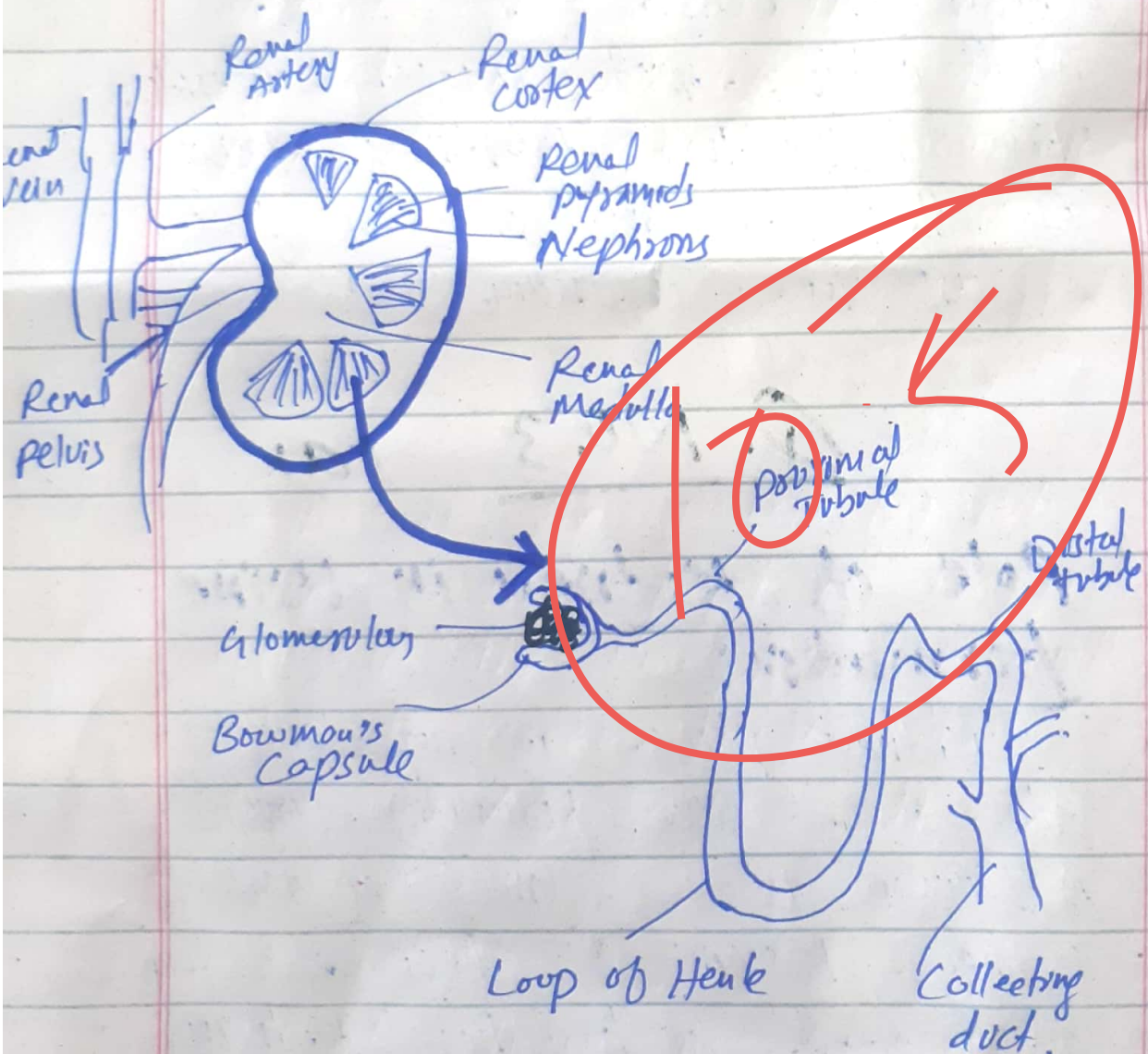
Detail? Diagram? Subheadings?

## Q. No. 3 (a)

## Role of Kidney in Urine formation:

Kidney plays an important role in urine formation. A Human body consists of two kidneys having a shape of bean seed. Both these kidneys contain millions of nephrons

These nephrons, actually, are the filteration plants of our body. Nephrons ~~contain~~ are tubular structures containing the following parts: Bowman's capsule, Glomerulus, proximal tubule, distal tubule, and collecting duct. All these parts act in filteration of urine while sending back the essential elements to blood vessels.



(b)

## a Remote sensing:

This is a modern technique in which infra red signals or other electromagnetic signals are used for sending messages to far distances, especially to satellites or other distant objects.

## b Role in environmental science:

Remote sensing plays an important role in environmental science. Because it is helpful in various ways:

### (a) prediction of disasters:

With the help of remote sensing satellites and remote sensing techniques, scientists are now able to predict the natural disasters which are to occur in near future.

e.g. cyclones, floods, volcanic eruption etc.

### (b) Feather forecasting:

Remote sensing helps in

Wheather forecasting. Now everyone is aware of that what will happen in next few days: Whether it will rain, snow, or hell etc. all this is made possible due to remote sensing.

## (b) exploring mineral sites:

With the help of remote sensing scientists and mineralogists now detect the sites. They can detect the presence of gold, iron, Copper, Silver, platinum, etc.

## (c) Greenhouse effect:

This is the process by which the earth's heat is trapped inside the atmosphere of earth due to green house gases such as $CO_2$, $NO_x$, $CH_4$ etc.

### Benifits:

⇒ It helps in normalizing the temperature in cold season

⇒ It helps in plants rapid growth.

⇒ It helps the nurseries to extend their business.

## Contribution to global warming:

As far as the global warming is concerned, the prime factor behind this ~~impression~~. Inferno is green house effect. As green house gases trap the earth's heat from going outside. The average temperature of earth is increasing day by day. Average temperature of earth is 15°C, but according to scientists since industrial revolution around 1.7C° rise has been witnessed.

## (d)
## Food Preservation methods:

Food can be preserved by various techniques. Following are some useful techniques and commonly used ones.

(1) **Pastorization:**
In this proces food items are heated for around 15 minutes at a specific temperature. which helps in preserving the food from attack of germs.

(2) **Freezing:**
Some food materials are kept at lower temperatures than zero C°. this process is called freezing.

(3) **Drying:**
It is another proces for preserving food items, especially meat and some fruits and vegetables. In this proces ~~it~~ food materials are dried to eliminate water completely.

(4) **Canning:**
It is widely used technique by which food materials are pastorized and then stored in small cans (made up of Allumenium) Now-a-days major portion of food is packeged by this way.

# Section B

(a)

Solution

| | present | past |
|---|---|---|
| Son | 30 | 30 - 5 = 25 |
| Father | 3(30) = 90 | 90 - 5 = 85 |

Hence current age of father is **85** years

(b)

Data =

Income tax = 10%

Income tax money = 1500

Total income = ?

Solution

According to formula

$$A \times \frac{Per}{100} = B$$

Here A is larger no = ?

B is smaller no. = 1500

hence

$$A = \frac{10}{100} \times 1500$$

$$A = B \times \frac{100}{per}$$

$A = 1500 \times \frac{10}{100}$

$A = 15000$ Rs

(d)

Find the missing one

(i) 8, 4, 32, 7, 5 ——

$8 \times 4 = 32$

$7 \times 5 = 35$

Hence

8, 4, 32, 7, 5, 35

(ii) 17, 19, 23, ——— 31, 37

These follow the order of prime numbers. Hence

17, 19, 23, 29, 31, 37

## Q. NO. 8 (a)

Data =

Total Area = 24 sqm

Liters required = 3L

percentage increase = ? :

Solution

Firstly we find that 50.4 sq requires how much Liter

Hence,

24 sqm requires 3L

1 sqm require = $\frac{3L}{24 sqm}$

50.4 sqm will require =

$$\frac{3L}{24 sqm} \times 50.4 sqm$$

$$= 6.3L$$

Now,

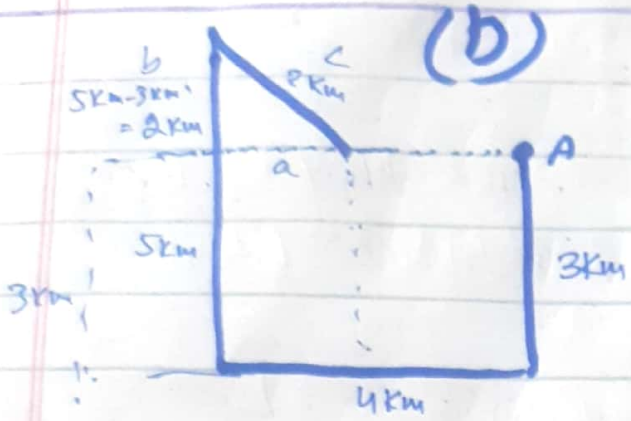
| Liter | | percentage |
|---|---|---|
| 3L | | 100 |
| 6.3L | | x |

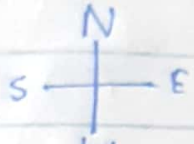
$$\frac{6.3L}{3L} = \frac{x}{100}$$

$$\frac{6.3}{3} \times 100 = x$$

$$= 210\%$$

(b)




Applying the formula

$a^2 + b^2 = c^2$

$a^2 = c^2 - b^2$

$a^2 = 2^2 -$

(c)

Solution: Tahir's Share = 15,000

Umar's Share = 30,000

Usman Share = 45000

Their ratios

Tahir : Umar : Usman

15000 : 30000 : 45000

1 : 2 : 3 = 6

Total profit = 406000

Tahir's profit = $\frac{1}{6} \times 406000$

= 67666.66

profit

Umar's share: $\frac{2}{6} \times 406000$

$= \boxed{135333.32}$

Aslam's profit $= \frac{3}{6} \times 406000$

$= \boxed{202999.98}$

(d)

Data:

property = 640,000

Debt = 40,000

Burial expenditure = 5,000

share of widow = ?

share of daughter = ?

share of two sons = ?

Solution

Net property = Total property − Debt − Burial

595,000 = 640,000 − 40,000 − 5000

Share of widow $= \frac{1}{8} \times 595000$

$= \boxed{74375}$

Remaining money = 595,000 − 74375

$= \boxed{520,625}$

share of daughter = 1 + 2

$\frac{1}{2} \times 520625$

$5 =$

$= 173541.6$

share of sons

$\frac{2}{5} \times 520625$

$= 2 \times 173541.6$

$347083.2$

share of each son