

Part IISection A

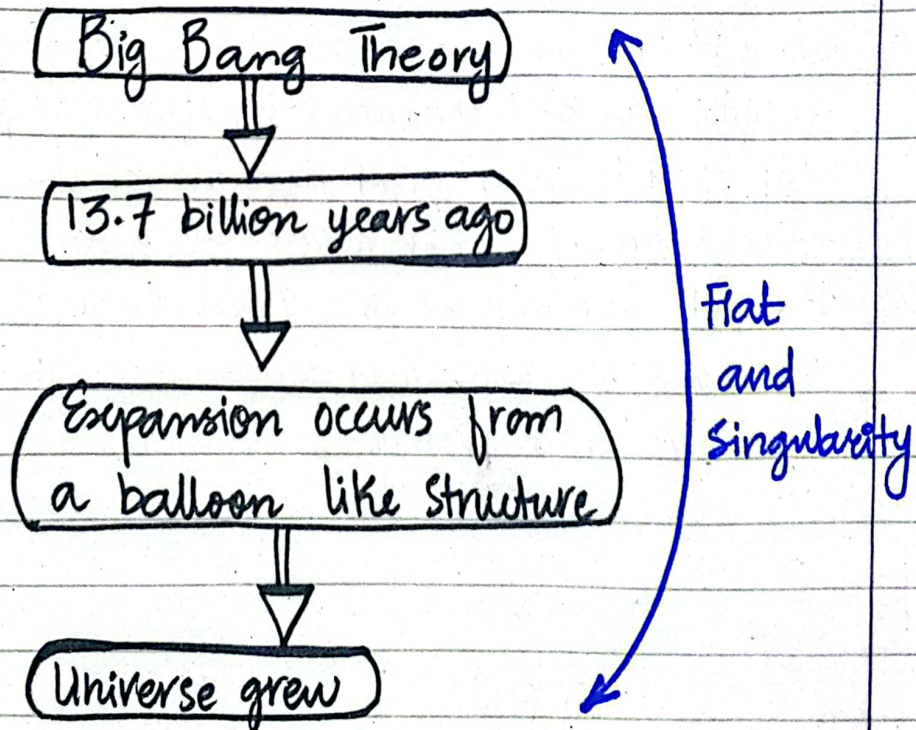
(any two)

Q.No: 2

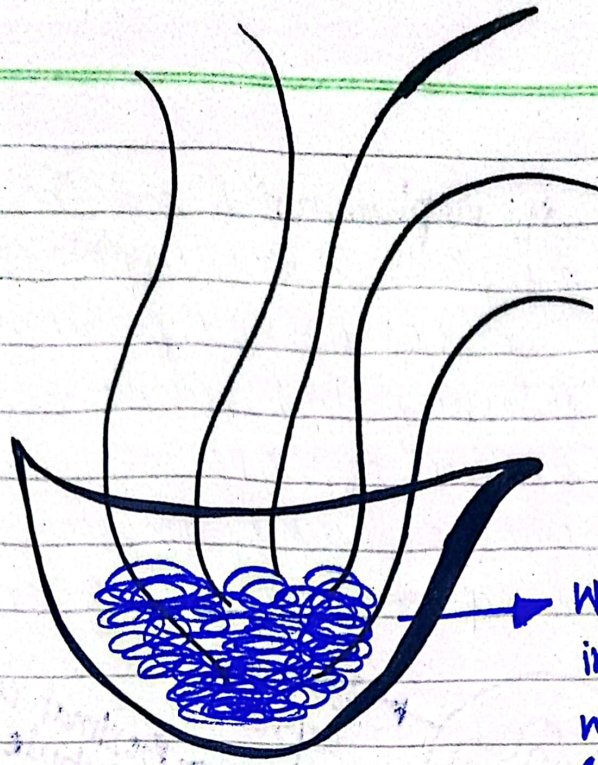
(a) Describe the structure of universe according to Big Bang theory?

Structure of Universe according to Big Bang theory:

The structure of universe according to Big Bang theory is flat and Expanding. It is 13.7 billions years ago that Big Bang Expansion occurs, and from it planets, solar system and other particle grew.



13.7
billion
years
ago

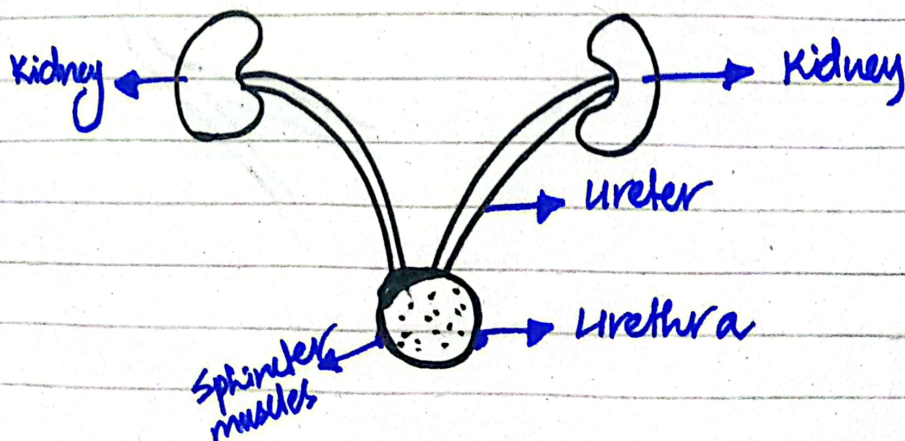


Whole universe
inside the bubble
when explodes;
Expansion occurs.

Big Bang Expansion of Universe

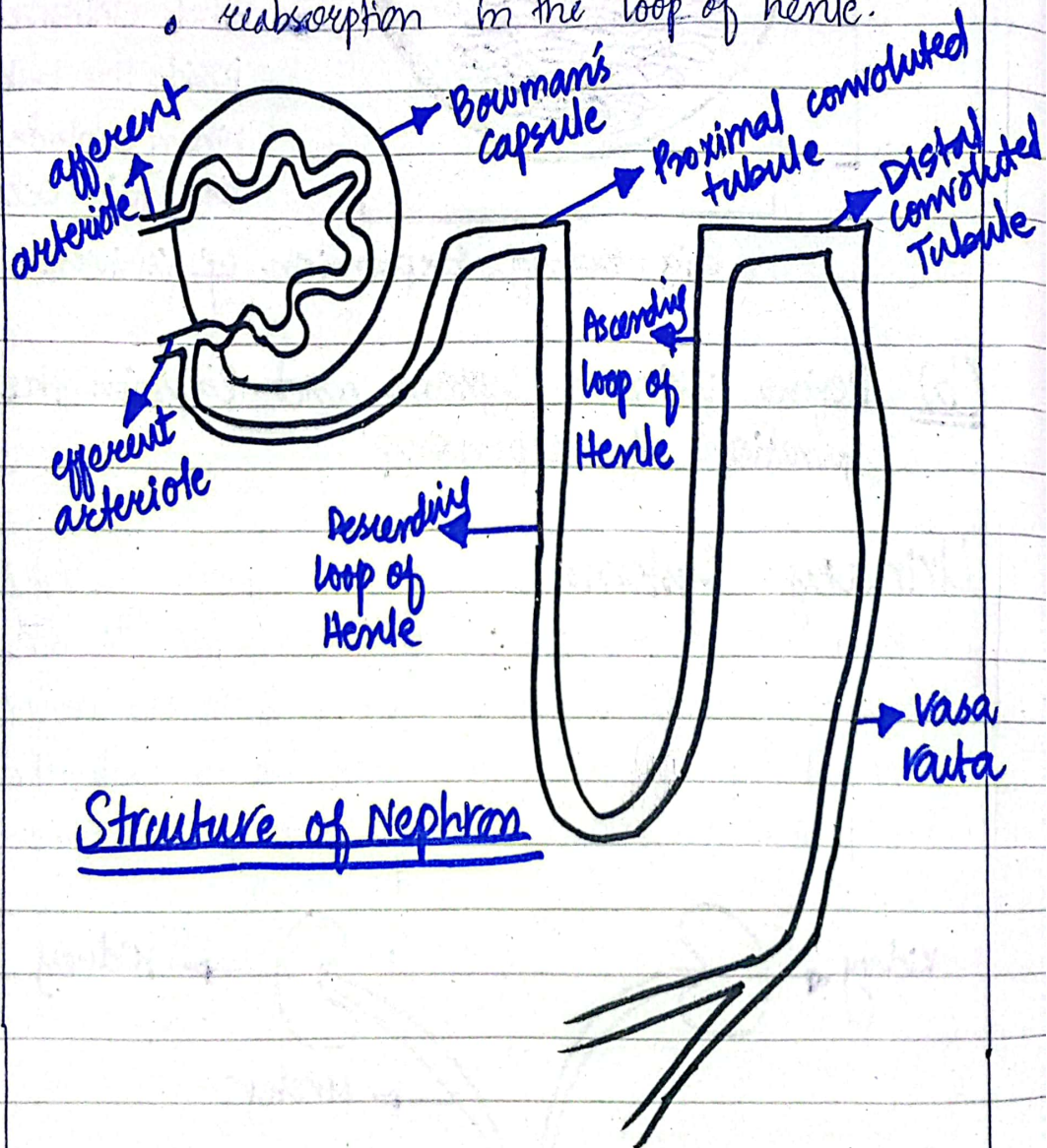
(b) Define Urinary System and Explain the function of nephron?

Urinary System: The urinary system consists of Bladder, Ureter and Urethra. It is responsible for the storage of urine and for the passage of urine. It also consists of sphincters which are in the voluntary control of human beings for the passage of urine.



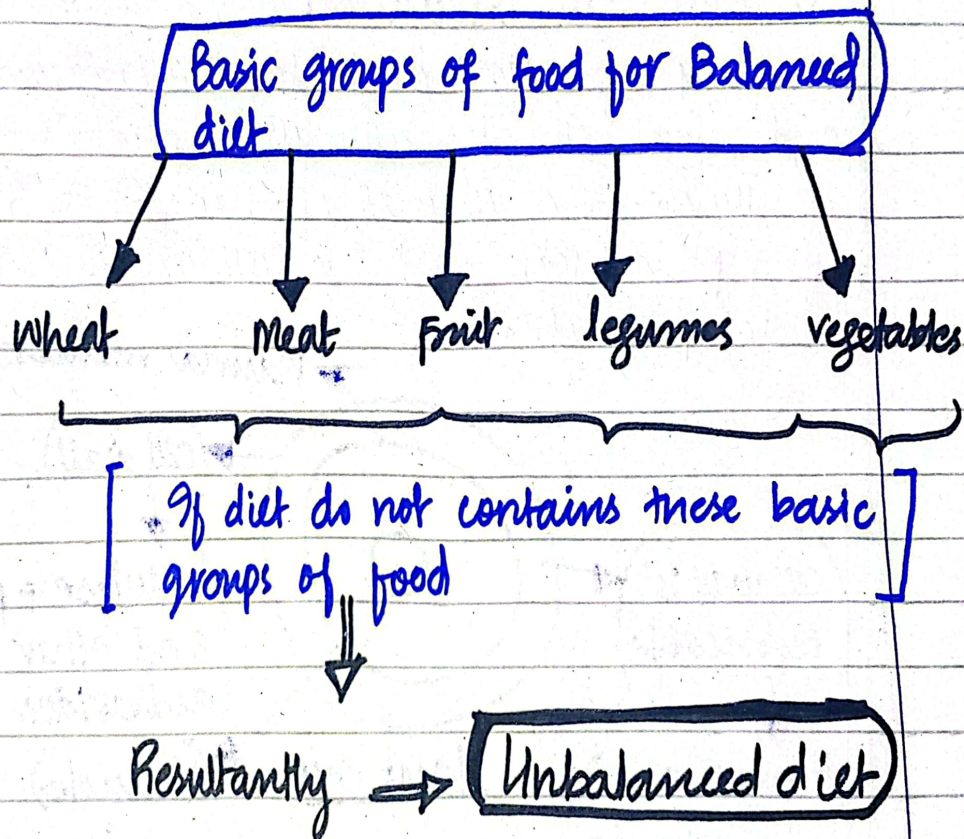
Function of nephron: Nephron is the functional unit of kidney. Each kidney consists of millions of nephron. These nephrons are responsible for the:

- Maintaining blood pressure
- formation of urine
- removing excess of ions and salt
- reabsorption in the loop of henle.



(C) What is unbalanced diet? How it affects the healthy living?

Unbalanced diet: The healthy diet of living organisms is from these basic groups of food: Meat, fish, vitamins, fruits, cereals, legumes, and wheat. If these ~~foods~~ are not consumed in diet. Resultantly unbalanced diet occurs.



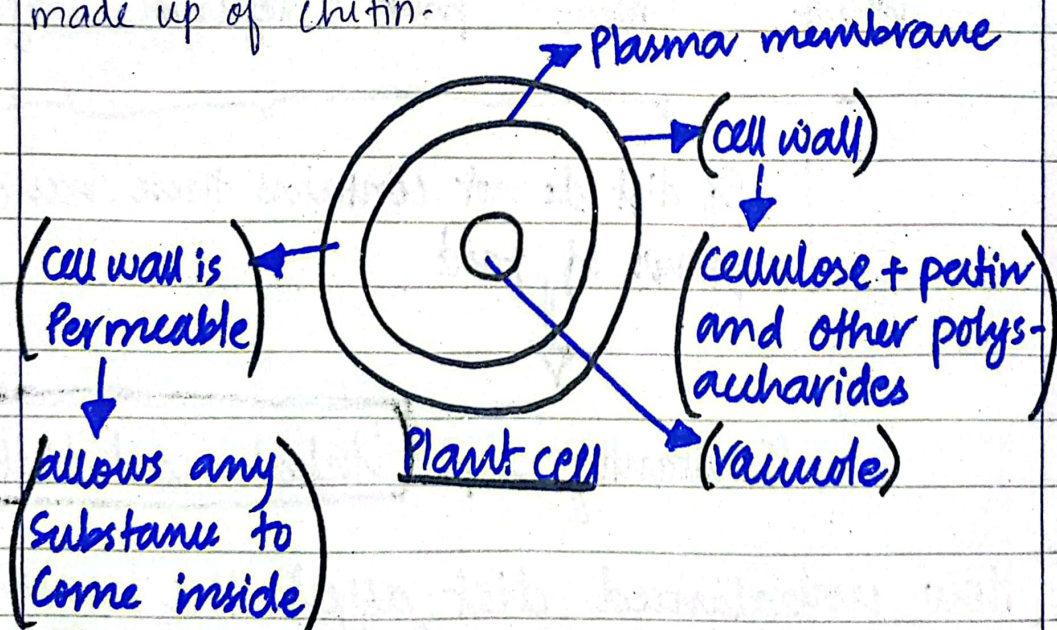
How unbalanced diet affects the healthy living:

The unbalanced diet may cause malnutrition, It

may affect normal physiological process, weakness, less absorption of food, anemia and many other abnormalities in a living body.

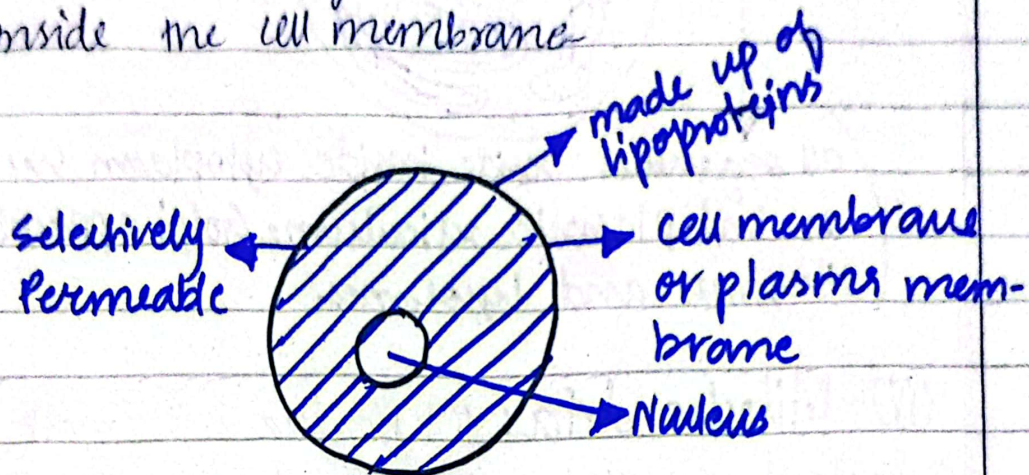
(d) Describe the structure and functions of cell wall, cell membrane, cytoplasm and mitochondria?

(i) Cell wall structure: cell wall is the outermost boundary of plant cell, bacterial cell, fungal cell and algal cell. The cell wall of plant is made up of cellulose. The cell wall of bacteria is made up of peptidoglycan and the cell wall of fungi is made up of chitin.



Function of cell wall: cell wall provides protection, support, provides skeleton, permeability and works as a defense for plant against environment.

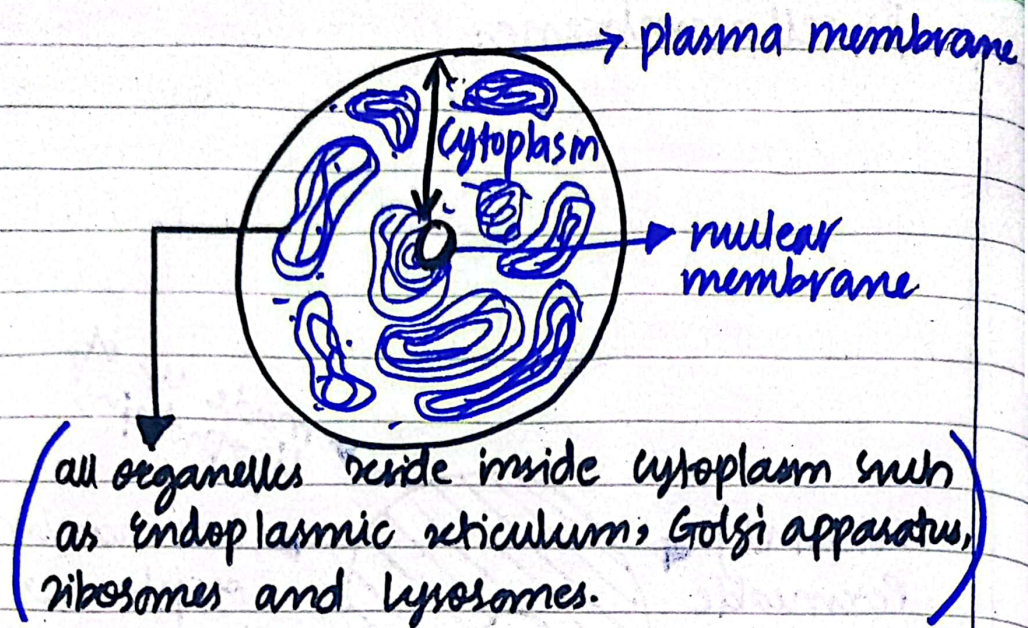
(ii) **cell membrane:** cell membrane is the outer most boundary of animal cell and second boundary of cell in plant cell. It is made up of lipoproteins. It is selectively permeable, means that only selective materials can come inside the cell membrane.



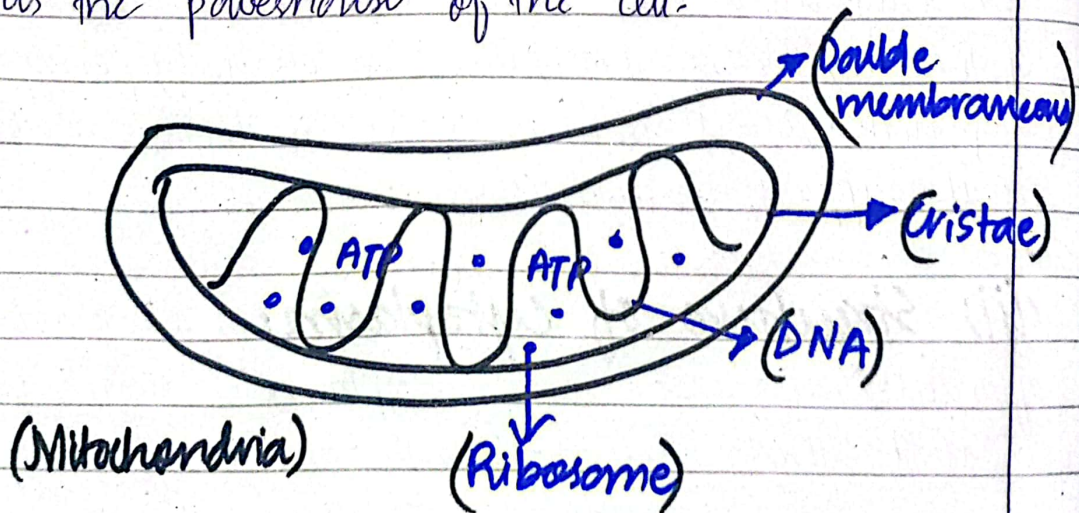
Animal cell

Function of cell membrane: cell membrane can only allow few substance to cross in and out of the membrane. Therefore, it is selectively permeable. It protects the cell from any harm. It gives mechanical support to the cell.

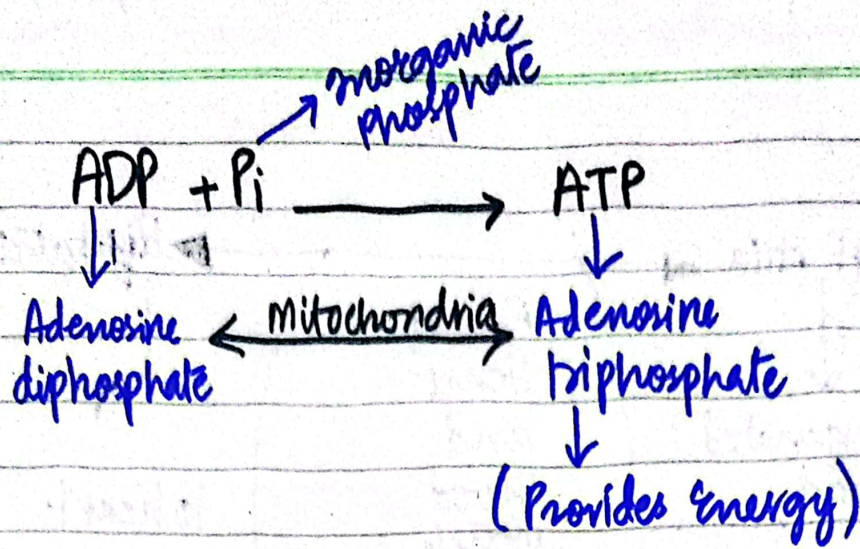
(iii) **Structure of cytoplasm:** The boundary of nuclear membrane to the plasma membrane is called cytoplasm. Cytoplasm consist of water, ions and sub-cellular organelles such as mitochondria, golgi apparatus, endoplasmic reticulum, lysosomes and ribosomes. These all organelles reside in the cytoplasm. Most of the cell reactions occur in the cytoplasm.



(iv) **Mitochondria:** Mitochondria is the most important subcellular organelle because it is responsible for the making of Adenosine triphosphate. Therefore, Mitochondria is also known as the powerhouse of the cell.



Function of mitochondria: The most important function of mitochondria is the formation and transportation of Adenosine triphosphate which provides energy to all other parts of the cell.

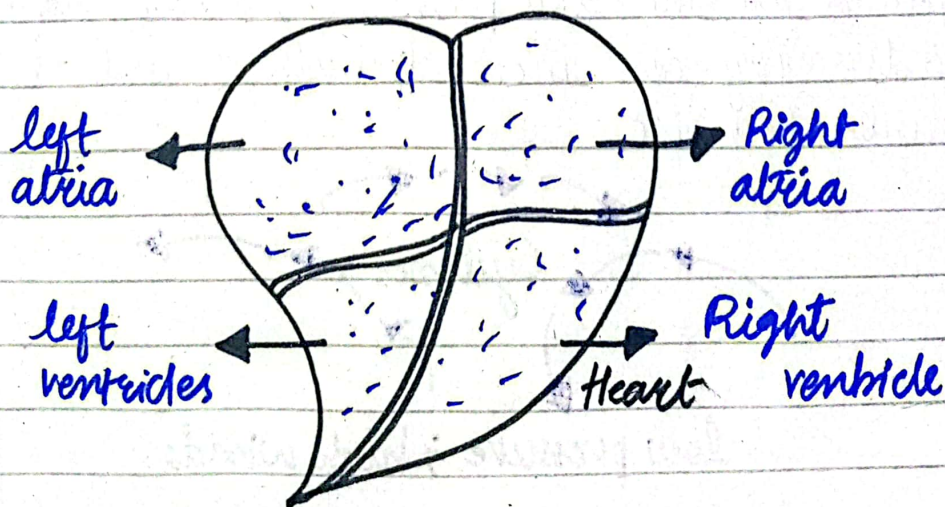


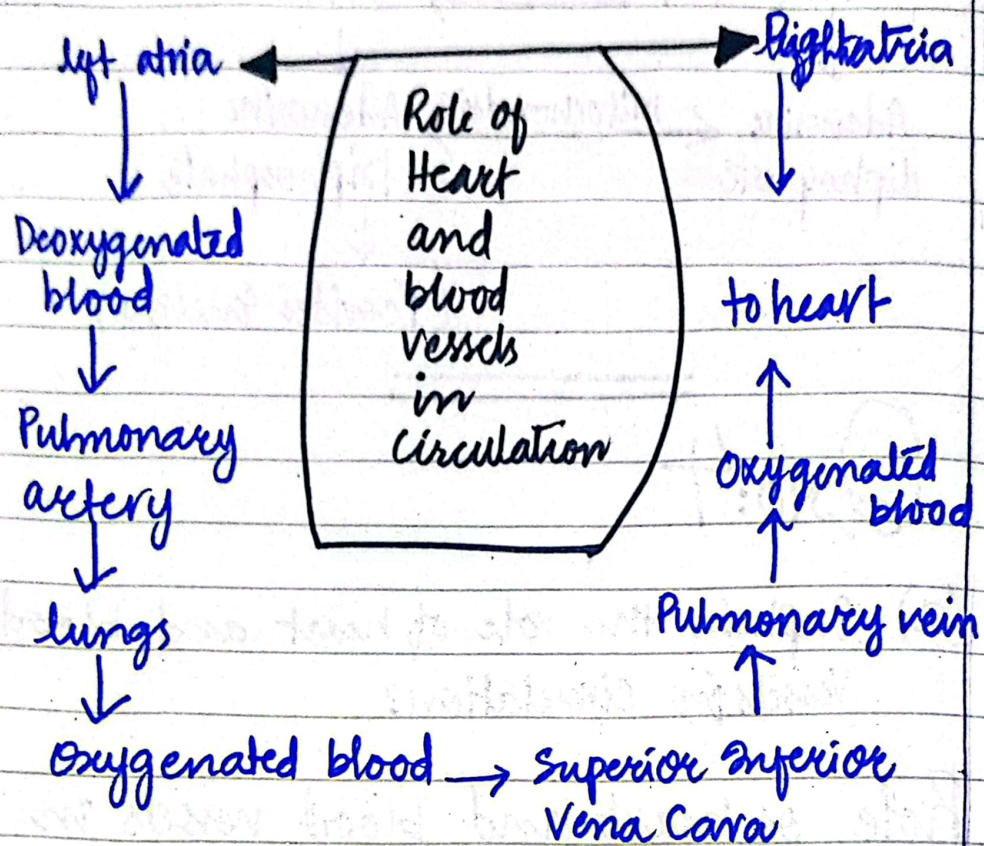
Q NO: 4

(a) Explain the role of heart and blood vessels in circulation?

Role of heart and blood vessels in Circulation:

Heart and blood vessels are the most important part of circulation throughout the whole body. Whenever, heart beat occurs; then pulmonary and systematic circulation occurs in the body.

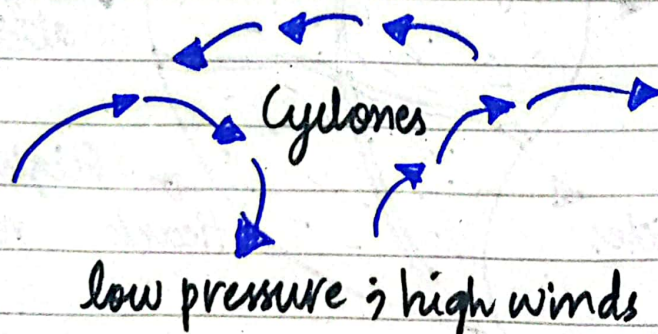




(b) what is cyclone? Describe the formation of cyclone?

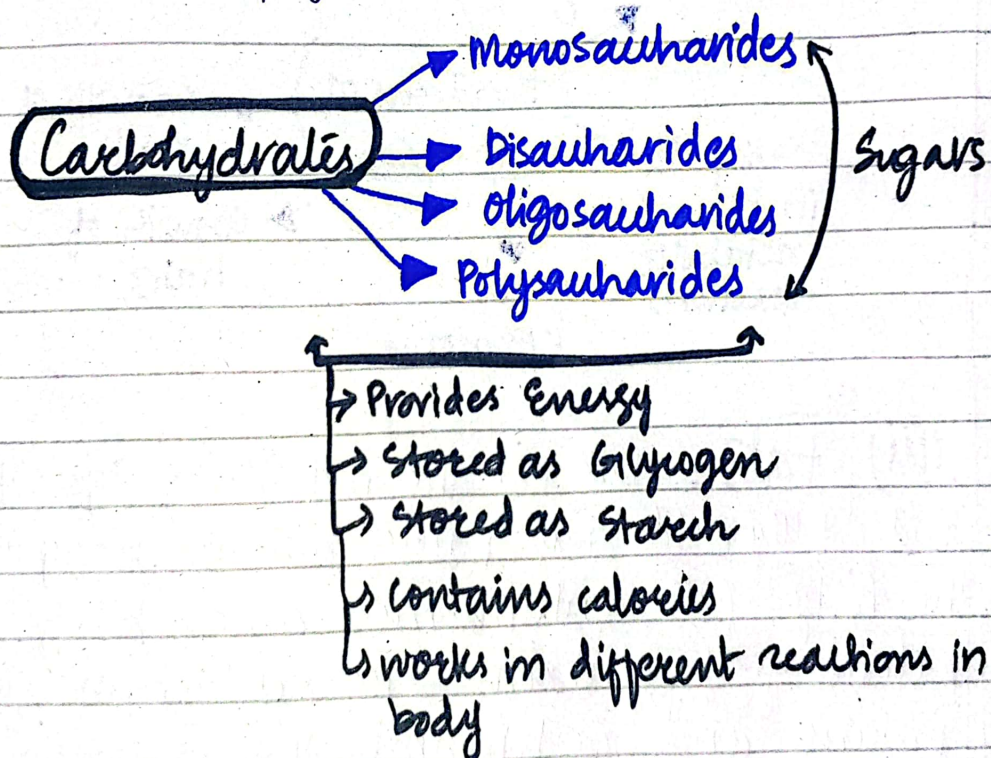
Cyclone and its formation:

Cyclones are the low pressure and high velocity winds. They can move clockwise as well as counter clockwise.

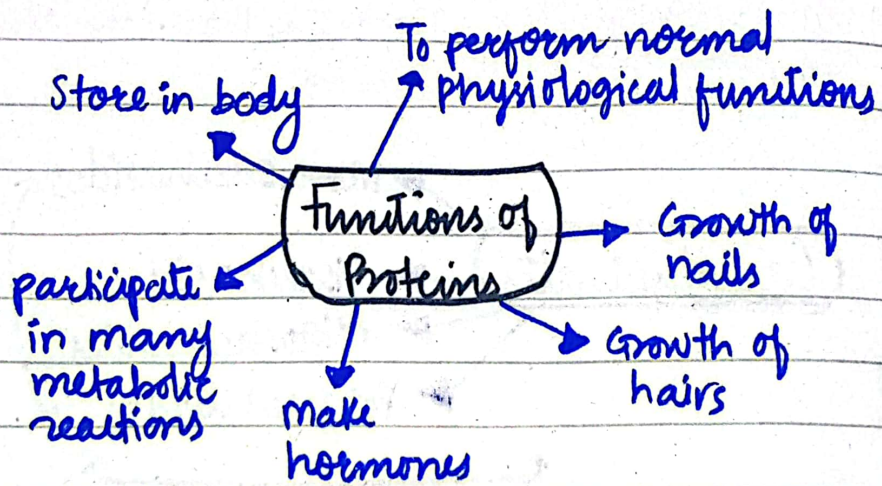
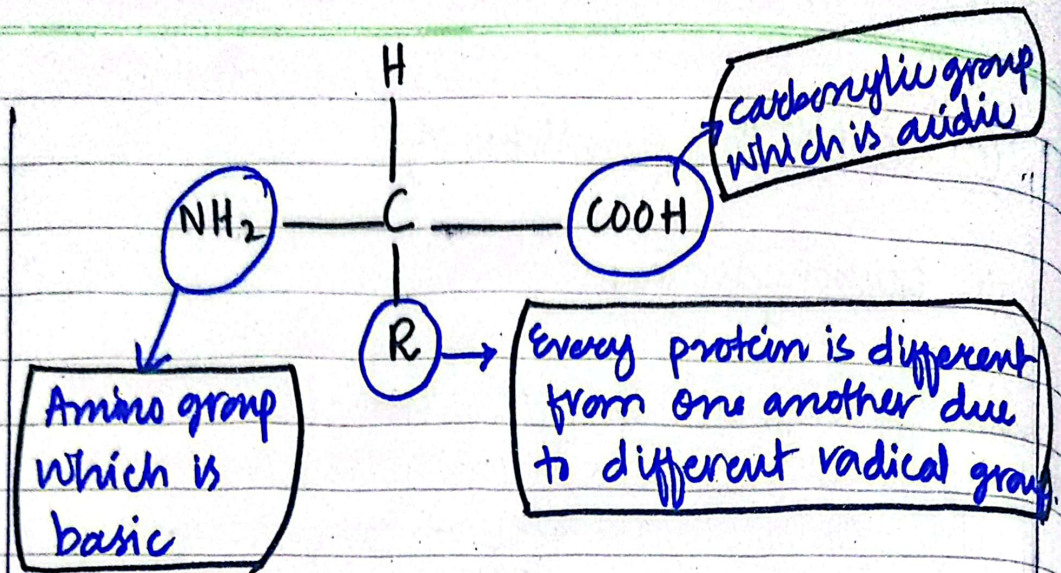


(C) Enlist the functions of:

(i) **Carbohydrates:** carbohydrates are made of up many monosaccharides. These are sugars which gives energy to living organisms. In animal's body it is stored as glycogen. whereas in plant's body it is stored as starch. There are further three categories of carbohydrates based on their sugar units: Monosaccharides, oligosaccharides and polysaccharides.

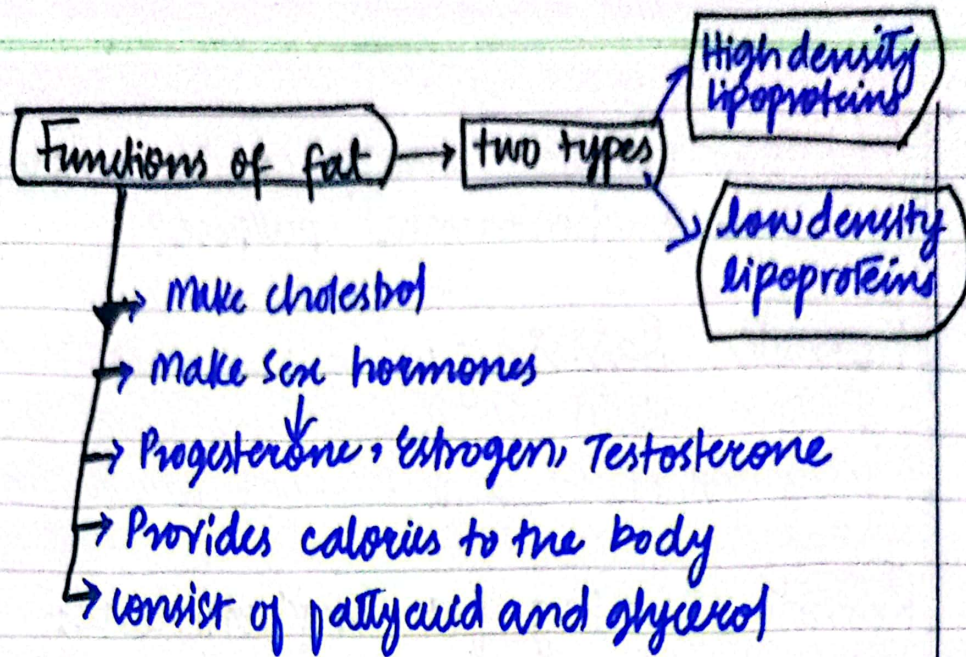


(ii) **Proteins:** Protein is the polymer of amino acid. Protein is important for nails, hairs, growth, and normal physiological functions of the body.

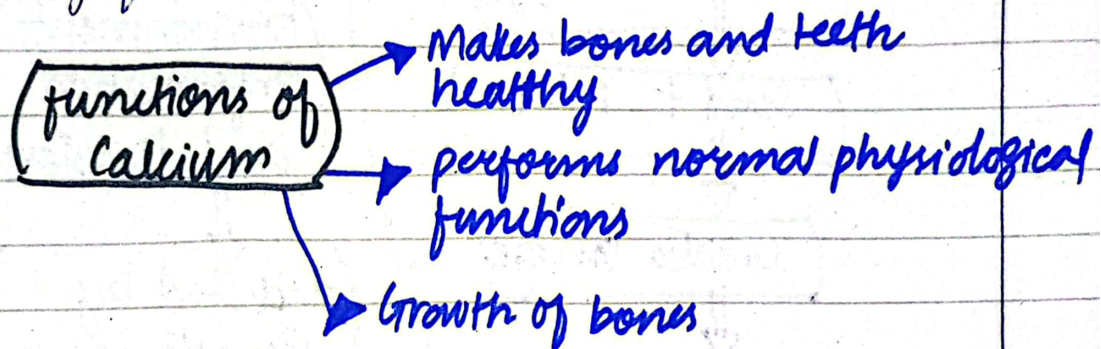


(iii) **Fats**: Fats are the molecules of glycerol and fatty acids. Fats provides instant energy to the body, fats contains more amount of calories. It contains twice calories than proteins and carbohydrates. There are two types of fats:

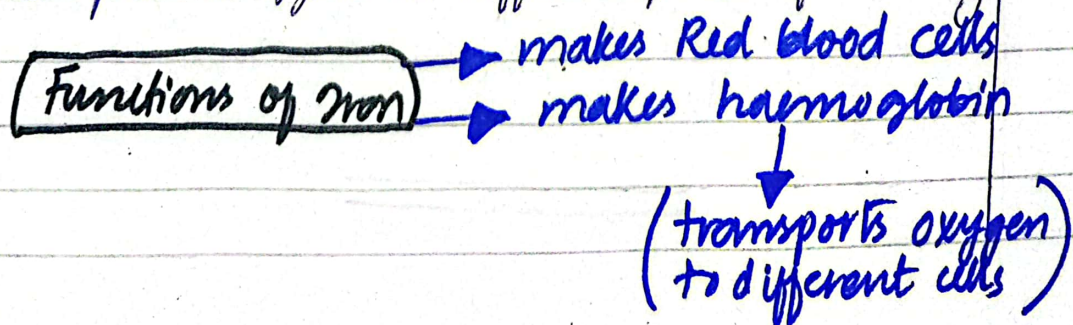
- High density lipoprotein
- Low density lipoprotein



(iv) **Calcium**: calcium is an inorganic ion which is very much important for performing normal bodily functions-



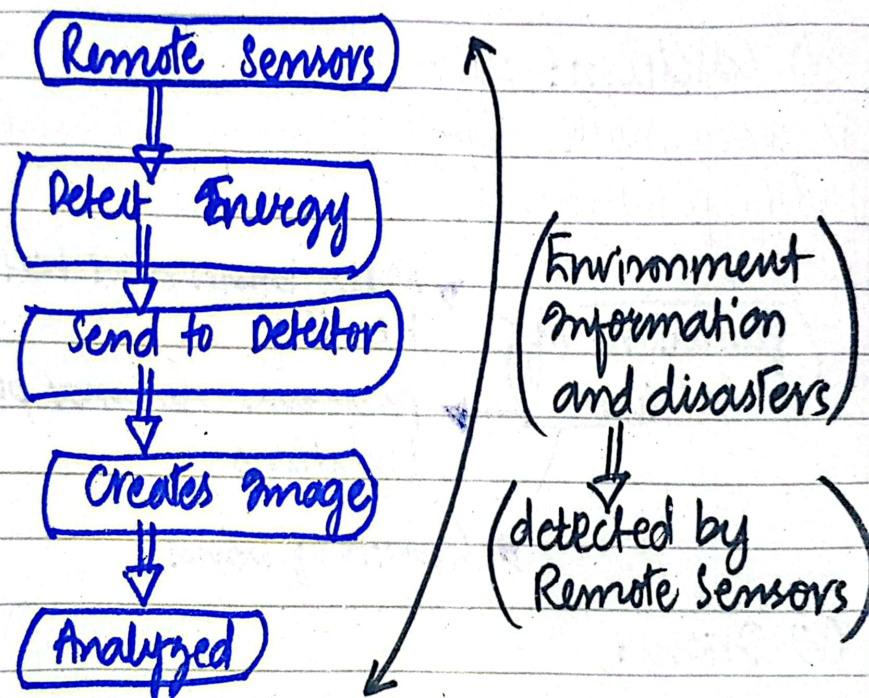
(v) **Iron**: Iron is an inorganic ion which is very much important for the formation of red blood cells and Haemoglobin. Haemoglobin is made up of iron which binds oxygen and transport oxygen to different parts of the body.



(d) How remote sensing can be employed for environmental purpose?

Remote Sensing: Remote Sensing is a technique which is used to detect and collect information of the Earth through various sensors.

Remote Sensing for Environment:



Remote sensors can detect information from the environment. This information can be detected by remote sensors in the form of energy. Detector can analyze the energy and creates image of that particular area.

Section B: (any two)

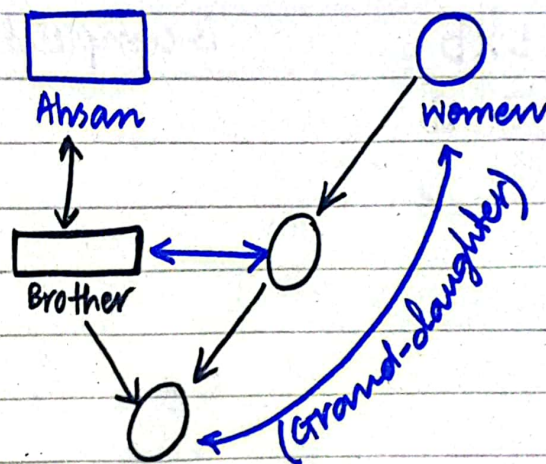
QNO: 6

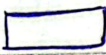
(a)

Data:

"Her grand-daughter is the only daughter of my brother?" (pointing to a woman: Said by Ahsan)

Solution:



let Ahsan be 

let woman be 

let brother of Ahsan be  $\longleftrightarrow$ 

let daughter of his brother be  $\rightarrow$ 

(Woman is the Brother's mother in law of Ahsan,

(b)

Data:

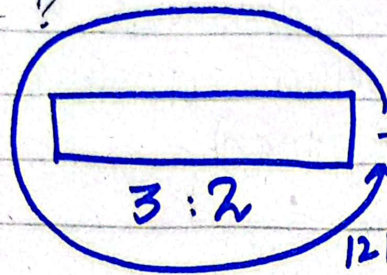
Rectangular park ratio = $3:2$

Speed = 12 km/hr

One round time is = 8 minutes

Area = ?

Solution:



Rectangle

12 km/hr one round is completed in 8 minutes .

$$\therefore \text{Area} = L \times b$$

$$\text{Area} = \frac{2}{3} L \times b$$

(C)

Data:

- two digit number
- units digit exceeds its tens digit by 2
- product of given number and the sum of digits is equal to 144
- number is = ?

Solution:

$$\rightarrow \text{two digits number} = x_1 + x_2 = 144$$

$$\rightarrow x_1 + x_2 = \frac{144}{2} = 72$$

$$\rightarrow x_1 + x_2 = 72$$

$$\rightarrow 72 + 72 = 144$$

(d)

Data:

- two numbers L.CM is 48
- numbers are in the ratio of 2:3
- sum of numbers = ?

Solution:

$$2+2+2+2+3 = \textcircled{11} \quad \text{Ans}$$

2	48
42	24
82	12
162	6
32	3
48	1

$2 \times 2 \times 3$
 $\quad \quad \quad 4$

Q No: 7

(a)

Data:

$$\frac{40}{100} x = \frac{2}{3} x \rightarrow \text{ratio of first number to the second number is ?}$$

Solution:

$$\frac{40}{100} x = \frac{2}{3} x$$

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

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

$$\frac{3 \times \cancel{12}}{\cancel{20} \cancel{10}} x = x$$
$$\frac{3}{5} x = x$$

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

The ratio of the first number to the second number is $\boxed{3:5}$

(b)

Data:

$$17 \text{ balls} = \text{Rs. } 720$$

Cost price of 5 balls loss

Cost price of ball = ?

Solution:

$$\text{Cost Price} = \text{Selling Price} - \text{Profit}$$

OR.

$$\text{Cost Price} = \text{Selling price} + \text{Loss}$$

$$\rightarrow \text{Cost of one ball} = \frac{720}{17} = \boxed{44.11} \rightarrow \text{Cost Price of one ball}$$

(c)

Data:

- A man = 24 years older than his son
- In two years, his age will be twice the age of son
- The present age of his son = ?

Solution:

$$\text{Man} = 2 (\text{age of his son})$$

$$2 \text{ years} + 24 = 2 (\text{age of his son})$$

$$26 = 2 (\text{age of his son})$$

$$\frac{13}{2} \times \frac{26}{2} = \text{age of his son}$$

$$\boxed{13 = \text{age of his son}}$$

(d)

Data:

Rashid take 6 hours to type 32 pages

Kamran take 5 hours to type 40 pages

time = ? for 110 pages-

solution:

• Rashid take 6 hours to type 32 pages

• Kamran take 5 hours to type 40 pages

• The time taken by both to type 110 pages = ?

$$\frac{160}{11} = 14.5 \text{ hours}$$

Ans

$$\begin{array}{r} 2 \overline{) 32, 40} \\ \underline{4} \\ 16 \\ \underline{16} \\ 20 \\ \underline{20} \\ 0 \end{array}$$

$$\begin{array}{r} 1 \overline{) 32} \\ \underline{3} \\ 2 \\ \times 5 \\ \hline 160 \end{array}$$