

Part II

Section-A

Question no. 04

a. Explain the role of heart and blood vessels in circulation.

• Circulation:

Circulation is defined as the flow of blood and nutrients from heart to the body and vice versa.

Role of heart in circulation:-

Heart:-

Heart is a muscular organ present between the lungs inclined slightly toward left. Heart is the major organ responsible for blood circulation.

Structure of heart:-

Heart is divided into two chambers; left and right. It has 4 ^{valves} chambers: left ventricle, right ventricle, left atrium, right atrium. There are 2 valves in the heart responsible for providing the passage to blood flow.

The process:-

Blood from pulmonary vein reaches the left ventricle. From this it enters to left atrium via bicuspid valve. Then, this deoxygenated blood goes the pulmonary artery. From there,

oxygenated blood
it enters the right ventricle and right atrium via a tricuspid valve. After that, it reaches to aorta from where it is distributed to the body.

Role of blood vessels.

(a). Arteries:- Arteries carry deoxygenated blood except pulmonary artery.

- Blood pressure is highest in case of arteries.

(b). Veins:- All veins have oxygenated blood except pulmonary vein.

- Blood pressure is lowest in case of veins.

(c). Capillaries:- They are tiny, delicate vessels that connect arteries and veins to body.

- They carry both oxygenated and deoxygenated blood.

Blood vessels are responsible for carrying the blood and nutrients to the body and that is how they are responsible for circulation.

b. What is cyclone? Formation of cyclone

A cyclone is a ^{natural} disaster which is followed by strong swirling winds.

A cyclone has following parts.

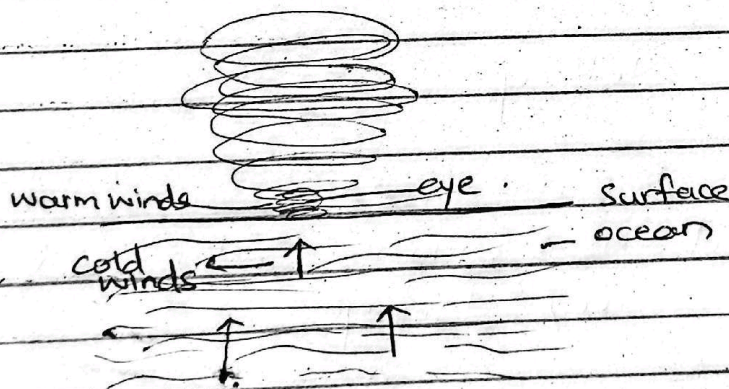
1. **Eye:-** This is the centre of the cyclone which has very low pressure.

Formations

Cyclones are usually formed on the sea or other water bodies.

Cold winds of the ocean go on surface and replace warm winds. The procedure continues until a low pressure centre is formed. These warm winds continue to circle the low pressure centre.

After some time, there is a huge wind formed and this is known as cyclone.



Effects of cyclones

Cyclone is drastic to the coastal areas. As it touches the ground it breaks and causes flood.

The flood destroys lives, infrastructure, livestock. Cyclone can also attract multiple people and infrastructure within it.

C. Functions of

1. Carbohydrates :

- Carbohydrates are a major contributor to the balanced diet.
- They are the most important energy source of the body.
- They are also responsible for the proper functioning of organs especially brain.

2. Proteins:

- Proteins are responsible for the strengthening of muscles and tissue in the body.
- They are also responsible for hair growth.
- Blood Clotting

3. Fats:

- They act as cushion and protect the organs from severe damage.

4. Calcium:

- For the development and strengthening of ~~bones~~ bones.
- Also for the strong teeth.

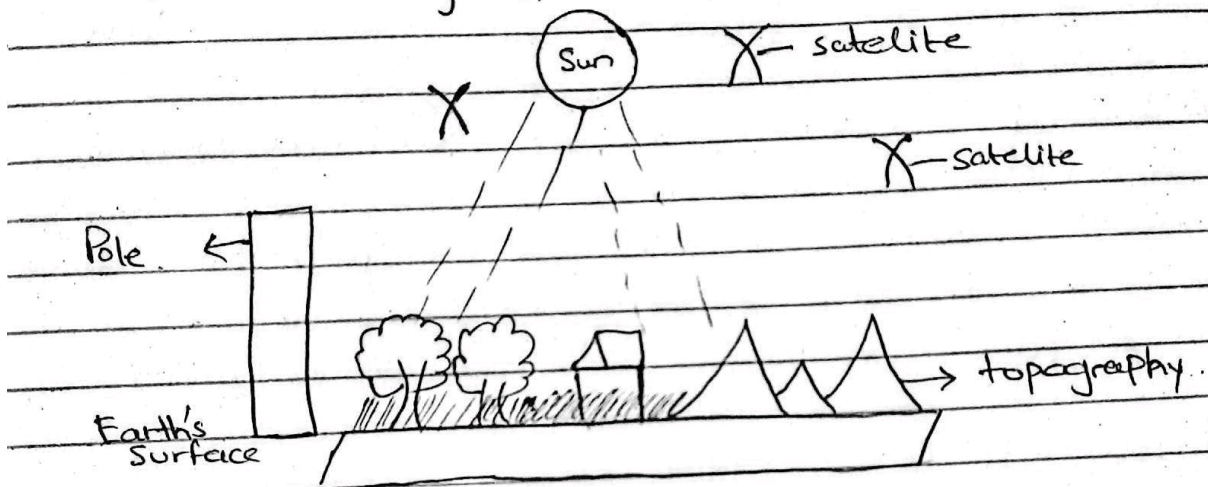
5. Iron:

It is used by Red blood cells to produce haemoglobin.

d. Remote sensing for environmental purpose.

Remote Sensing:

It is a process through which one can environmentalists can sense all environmental conditions digitally.



Sun's radiations strike the ground. Satellites signal about what is present where on the Earth. These signals are received by the sensors and environmentalists can check that which part of Earth has what on it. Which part is forests, ocean or mountains.

Benefits

- Helps in fast and accurate access
- Easier to be monitored
- One can see which part of Earth is Productive.
- Cheaper

Question no. 02.

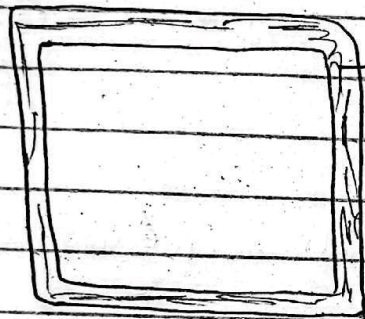
d. Structure and Functions of Cell wall,

ii. Cell wall:-

Cell wall is the outer boundary of the plant cells. It is a rigid, non living layer.

Structure-

- It is present above the cell membrane only in plant cells
- It is composed of cellulose in plant cells while in fungi, chitin



Cell wall.

Plant cell

Functions

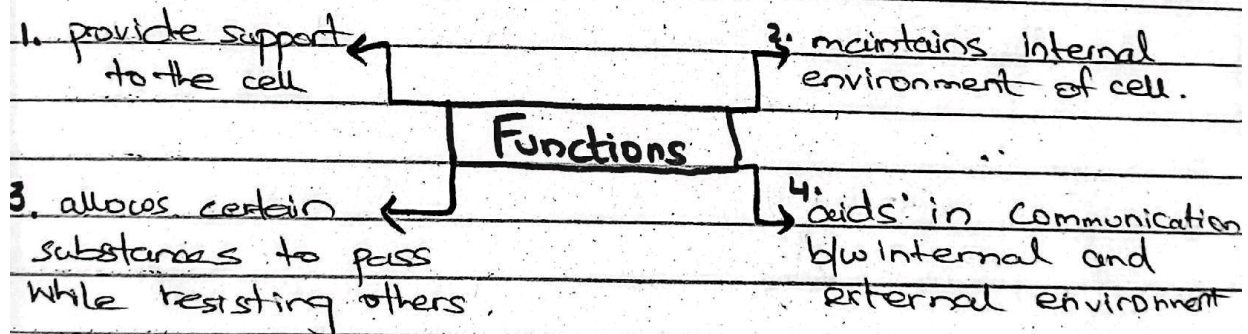
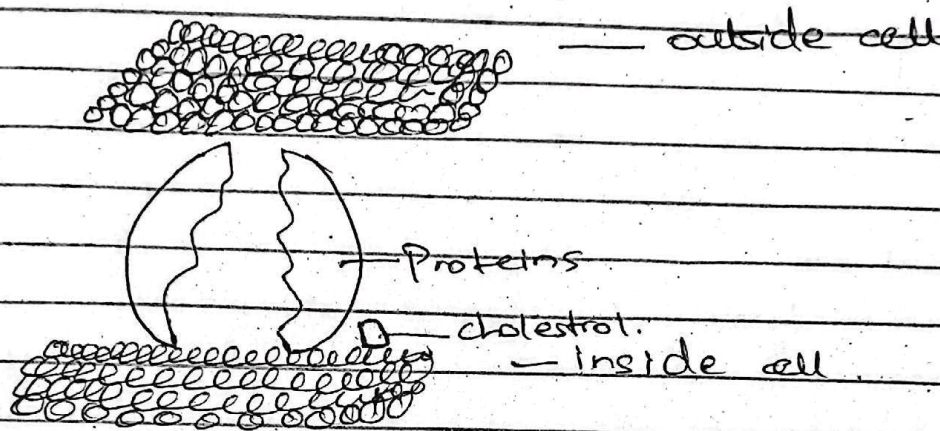
- It provides shape to the cell
- Helps plant to stay straight
- Protect plants from external factors
- support plant structure.

iii) Cell membrane.

Cell membrane is a flexible, thin, living boundary in both animal and plant cells.

Structure

- Present above beneath cell wall in plant cell and is the external layer of animal cells
- Contains phospholipids, proteins and carbohydrates
- Well described by fluid mosaic model.
- Semi permeable



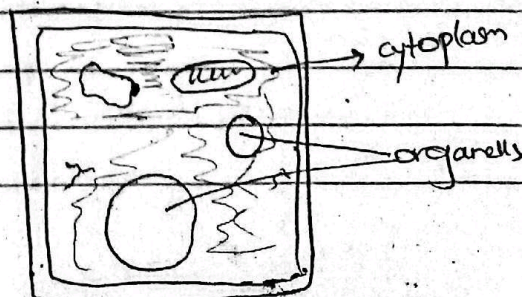
Cytoplasm

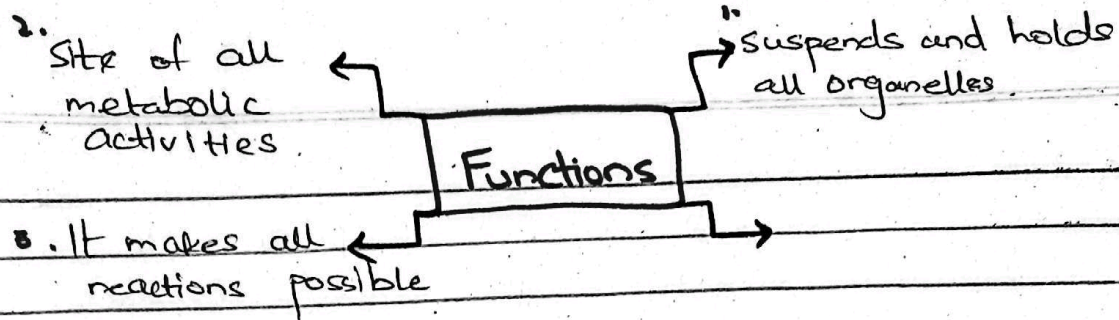
Cytoplasm is a jelly like fluid inside the cell.

Structure

It is a fluid with the cell membrane. It has two faces.

1. cis face → fluid
2. face → organelles





4. Mitochondrion

Mitochondria are double membrane bounded organelles that are the major source of energy.

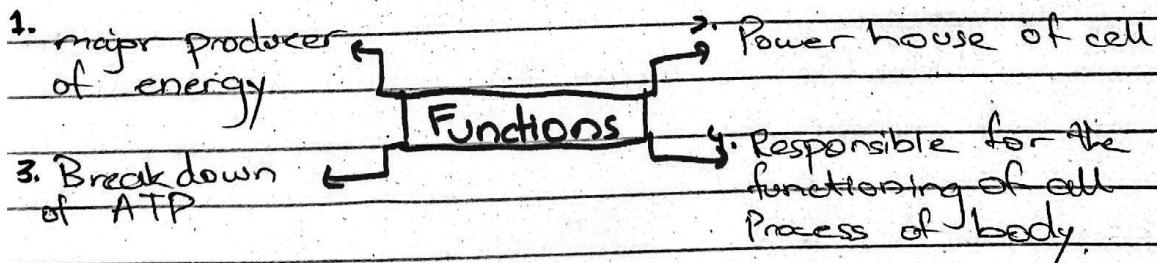
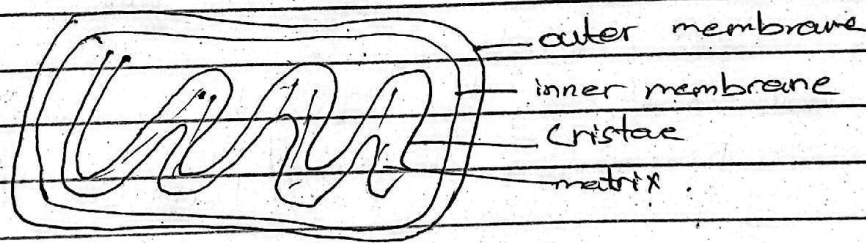
Structure

Double membrane bounded organelles

External membrane is simple while internal is folded into many folds called cristae.

To increase space for chemical reaction.

In the cristae, there's a fluid called matrix.



b. Unbalanced diet? How it help in healthy living.

Unbalanced diet:-

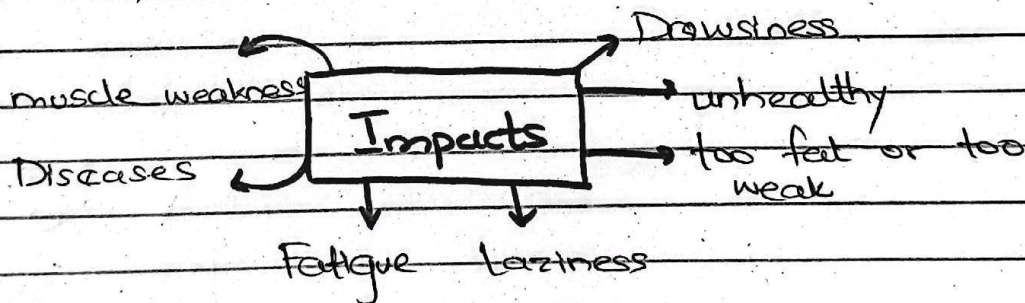
An unbalanced diet is a diet that ~~exceeds~~ ^{has} an inappropriate amount of nutrients in it.

Our body needs an appropriate and fixed amount of nutrients to stay healthy. However, when we fail to maintain a balanced diet, it has bad impacts on us.

- Unbalanced diet contain an excess or deficient amount of Carbohydrates $\pm 40\%$, Proteins $\pm 40\%$, Lipids $\pm 10\%$, Fibre/nutrients $\pm 10\%$.

Water below or more than 8 glass

Moreover, it also varies person to person, BMI, nature of work.



c. Urinary system:-

Urinary system or excretion system is responsible for the keeping the body clean.

Organs:-

1. Kidney $\rightarrow$ Kidney passes excess of water to ureters.
2. Ureters $\rightarrow$ Ureters take it to bladder.
3. bladder $\rightarrow$ Bladder temporarily store it.
4. Urethra $\rightarrow$ The water is released in form of urine.

a. Structure of universe.

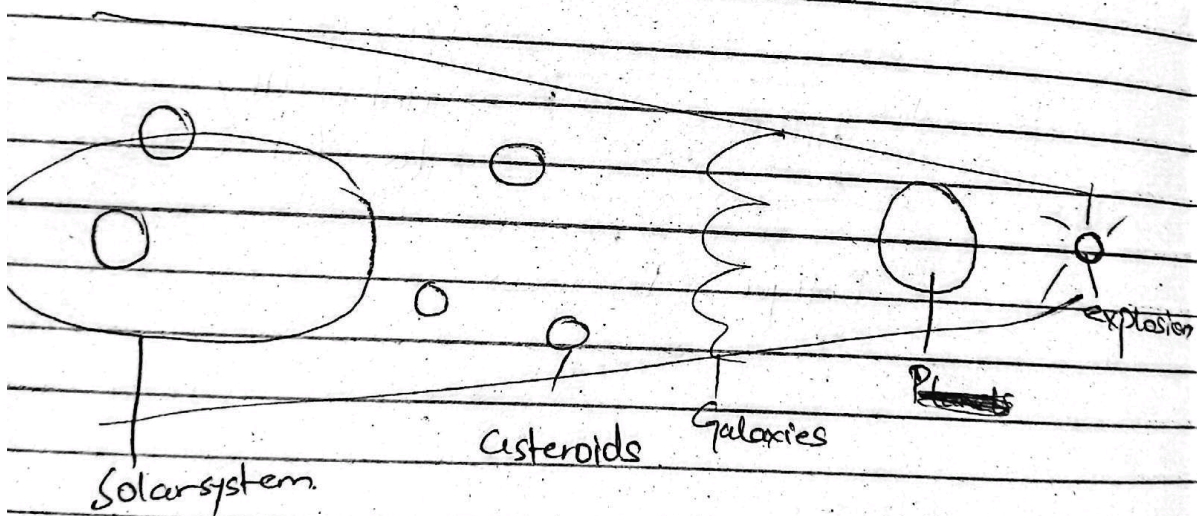
Big Bang Theory states that the universe was a small, single atom that exploded 13.8 billion years ago.

According to this theory, the universe originated from a point named as singularity.

And after that it continued to expand and is still expanding.

Universe is Expanding—

An experiment known as the Red shift explained that how the galaxies are moving apart from each other.



Question no. 08.

a. 5 different houses A to E

- A is to the right of B

~~AB~~ BA

- E is to the left of C. and right of A

EC

- B is to right of D.

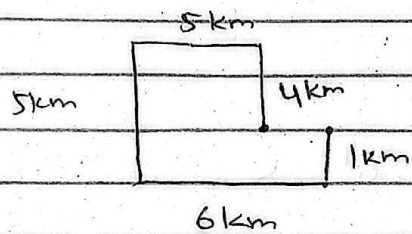
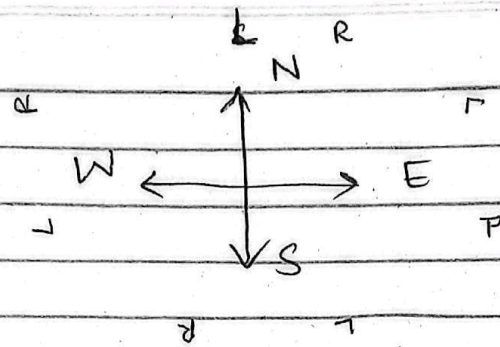
DB

The total sequence is :

DBAEC

The house in the middle is A.

b. If u start running from a point



a. How many km are you from starting?
 • 1 km.

b. Which direction you will be running while finishing?
 • North

c. After 2nd turn, which direction?
 • South

d. From finishing point if you have to reach point where you started, which direction you run?
 • West

c. Find odd man out.

a. THRSI → SHIRT

b. AOTC → COAT

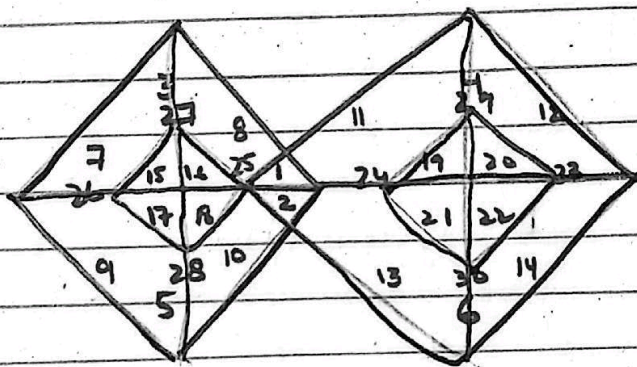
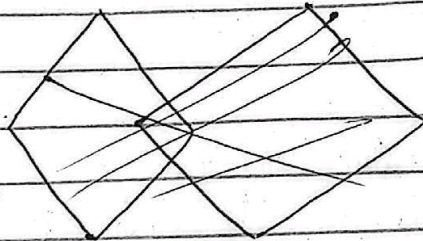
c. FOUBSL → BLOUSE

d. KTRIS → SKIRT

e. RETAEWS → SWEATER

Blouse.

d. Triangles



30 Triangles.
30.

Question no. 06.

a. Pointing to a woman, Ahsan said,

Her granddaughter is the only daughter of my brother.

Grandel

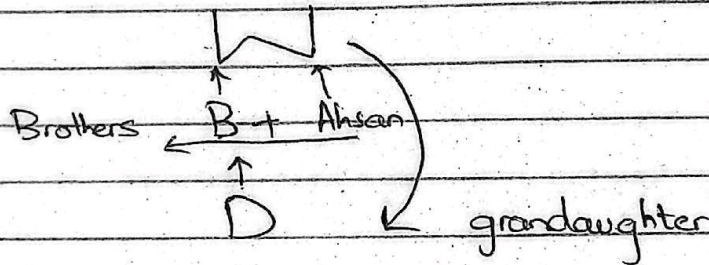
The woman is the mother of Ahsan
Evidense.

Suppose, the women is W.

Daughter is D.

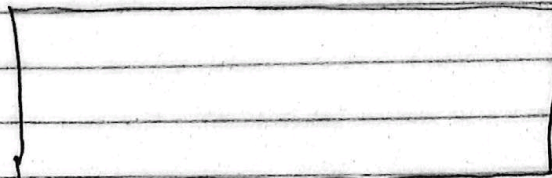
Brother is B.

- Ahsan and B are brothers
- D is the daughter of B and granddaughter of W



- B is the son of W.
 - Since B + Ahsan are Brothers both are son of W.
- Hence proved.

b. Ratio b/w L and b is 3:2. Man cycling at speed of 12 km/hr completes one round in 8 mins, area of park is?



2

$$\text{length} = \frac{3}{5} \times 2$$

$$\text{Breadth} = \frac{2}{5} \times 2$$

$$\frac{6}{5} \times$$

$$\frac{4}{5}$$

$$\text{Area} = 2 \times (\text{L} + \text{B}) \times \text{L} \times \text{W}$$

$$\frac{6}{5} \times \frac{4}{5} = \frac{24}{25}$$

c. In a two digit

$$\text{Ten's digit} = 2$$

$$\text{Unit's digit} = \text{exceed Ten's digit by 2} \\ = 24$$

According to the condition. Product of the given number and sum of its digit is equal to 144, then no. is

$$24 \times (2+4) = 144$$

$$24 \times 6 = 144$$

No. is 4

End.

~~d. LCM of 2 no.s is 48. 2:3~~

X