

Q.1

(a)

1. Human Heart:

Heart is the pumping organ in humans and other animals.

It is located in chest cavity to slightly left side of ribs.

It helps in circulation of blood throughout the body.

2. Working of Human Heart.

Human Heart comprises four chambers

(i) Right Atrium

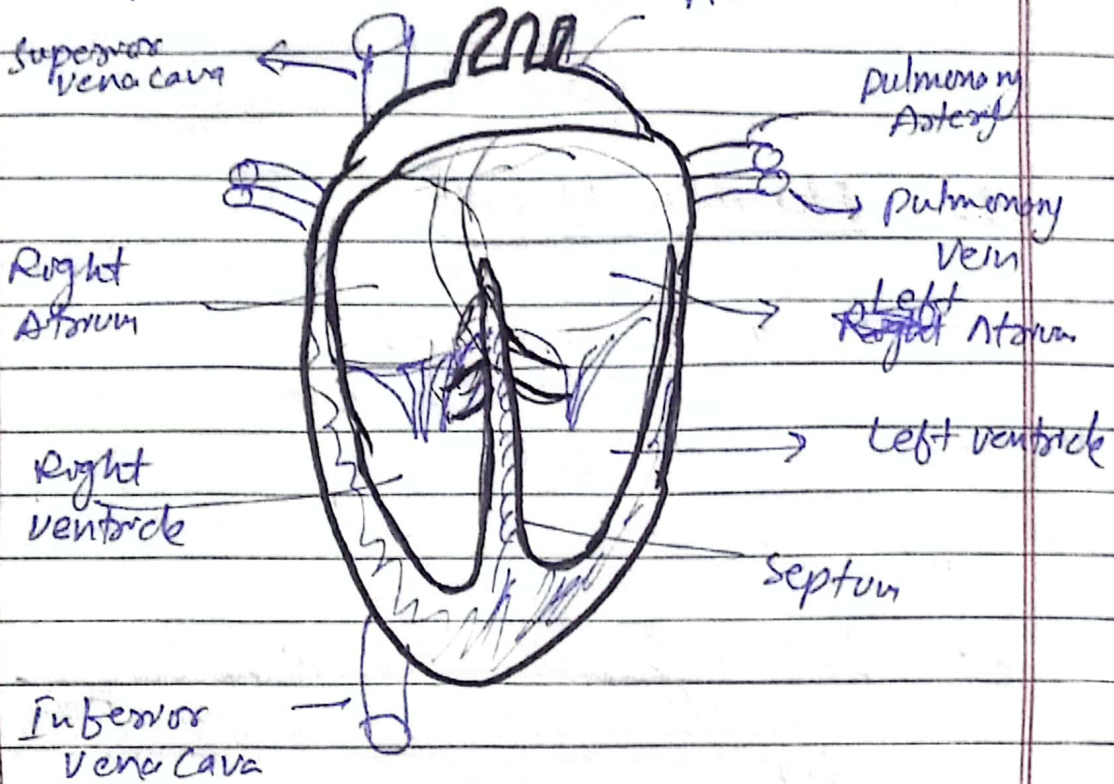
(ii) Right Ventricle

(iii) Left Atrium

(iv) Left Ventricle

Firstly the blood enters the right Atrium through vena cava, and then is poured into the right ventricle through tricuspid valve. As this contains deoxygenated blood, hence, travels to lungs via pulmonary Artery to get oxygenated. Then oxygenated blood enters the left Atrium, which pours the blood into left ventricle by bicuspid valve. Later on, the blood - which is oxygenated - is transported throughout the body

by a network of veins and capillaries.



(Diagram of Human heart)

(b)

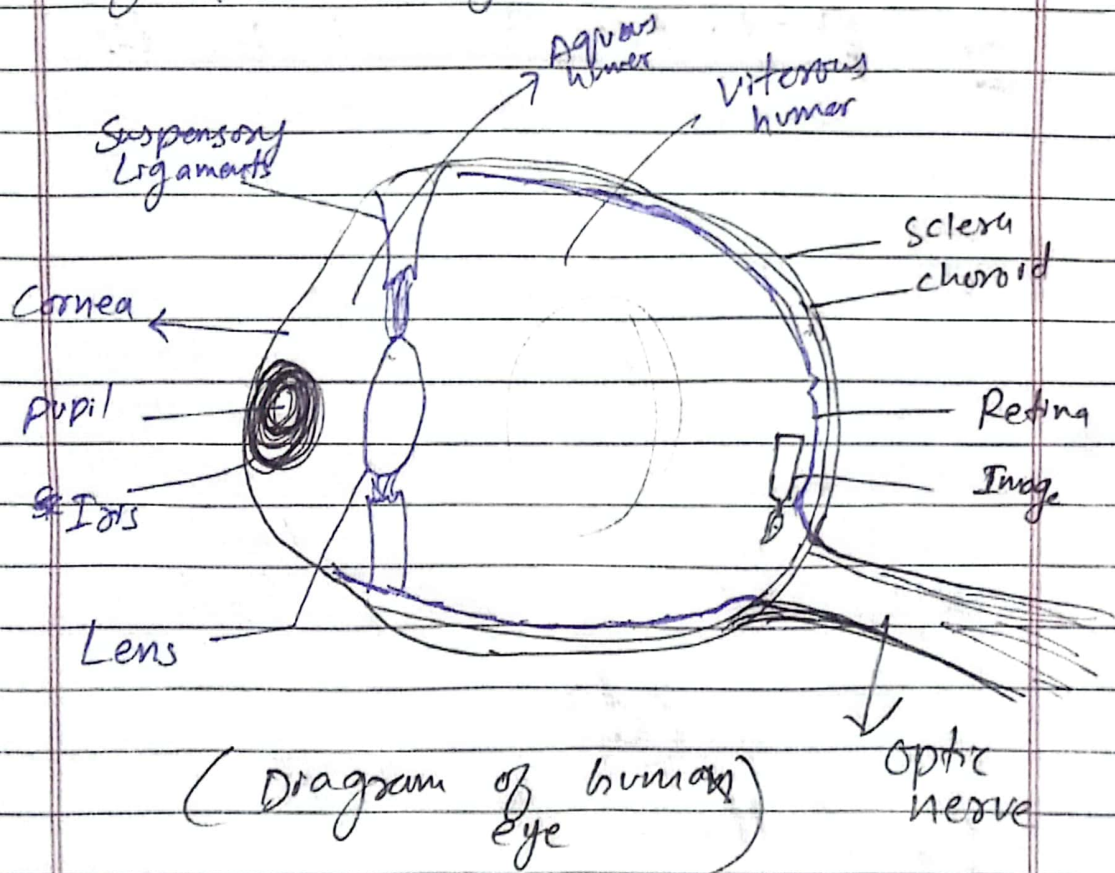
1. How do we see?

All the humans and most of the animals have a pair of eyes which help them seeing the objects around. These are socketed in eye sockets below nosehead.

2. How Eyes work?

At first light enters the human eye by **pupil** of the eye, which is controlled by **Iris** (the colored part of eye). After passing through the pupil

Light passes through **aqueous humor** and falls on the lens. The lens helps in focusing the light on **Retina** — The very sensitive part of Human eye. The Image is formed on Retina. Then **optic nerve** carries the message towards brain to interpret it. The brain sends the signals and we see an image of that object.



(C)

1. Bio-Fuels:

These are the fuels which are made by decomposing organic waste with the help of bacteria or other microscopic

organisms.

2. Importance of Bio-fuels

They are important for the following reasons.

1. They are environment-friendly
2. They can be prepared easily
3. They are cheaper than fossil fuels.
4. They do not cause global warming.

3. Production of Bio Fuels

Bio-fuels are mainly produced by action of a microscopic organism on organic waste.

For this purpose the organic waste is placed in a container.

Then microscopic organisms are introduced to that container

with a span of few days, bio-fuels are produced.

(d)

1. Cell:-

Cell is the structural and functional unit of all living organisms. It gives them shape and also carries a variety of functions, such as digestion, contraction, coordination, defense, circulation, etc.

Date: _____

There are various type of cells. However, the three main categories are as follows.

2. Types of cells

A) Animal cells:

- (i) They have no cell wall
- (ii) They have small but numerous vacuoles
- (iii) Nucleus is centered
- (iv) They have no chloroplast
- (v) They contain centrioles

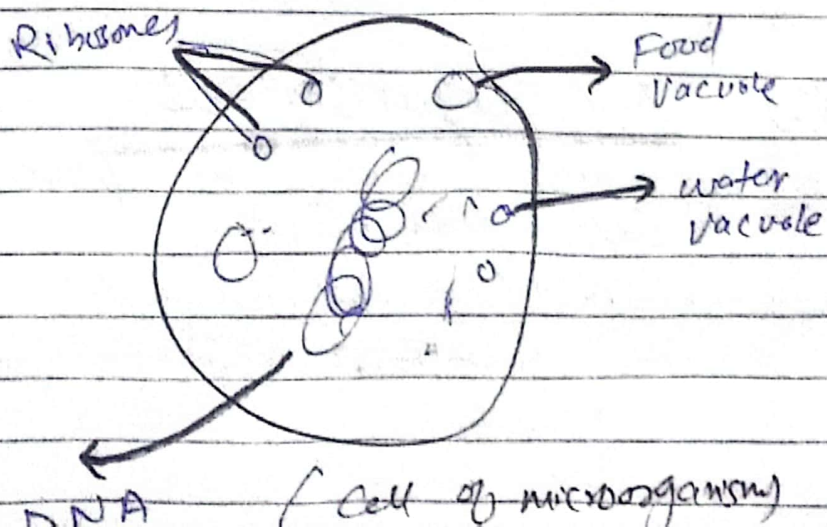
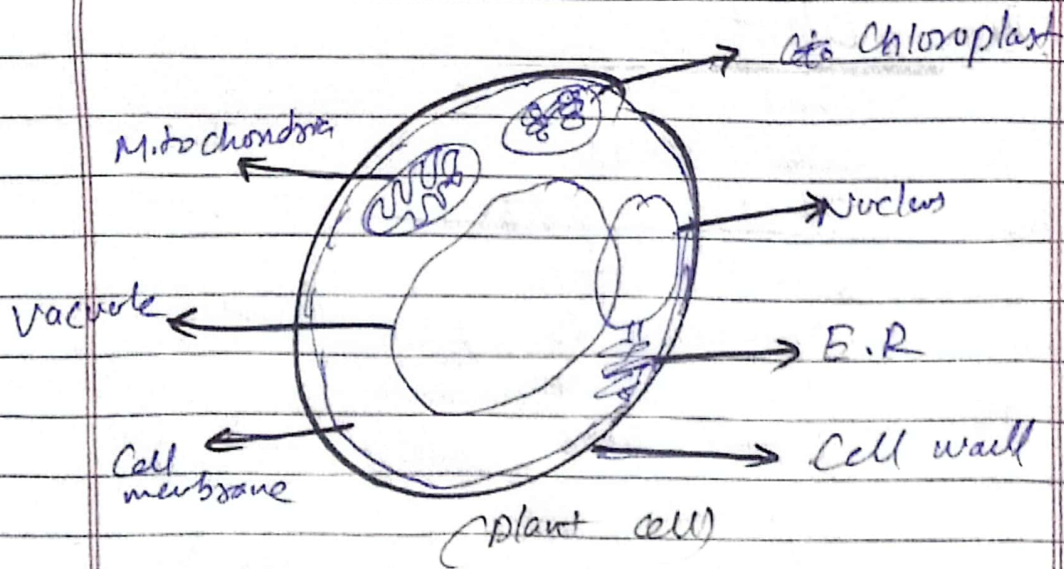
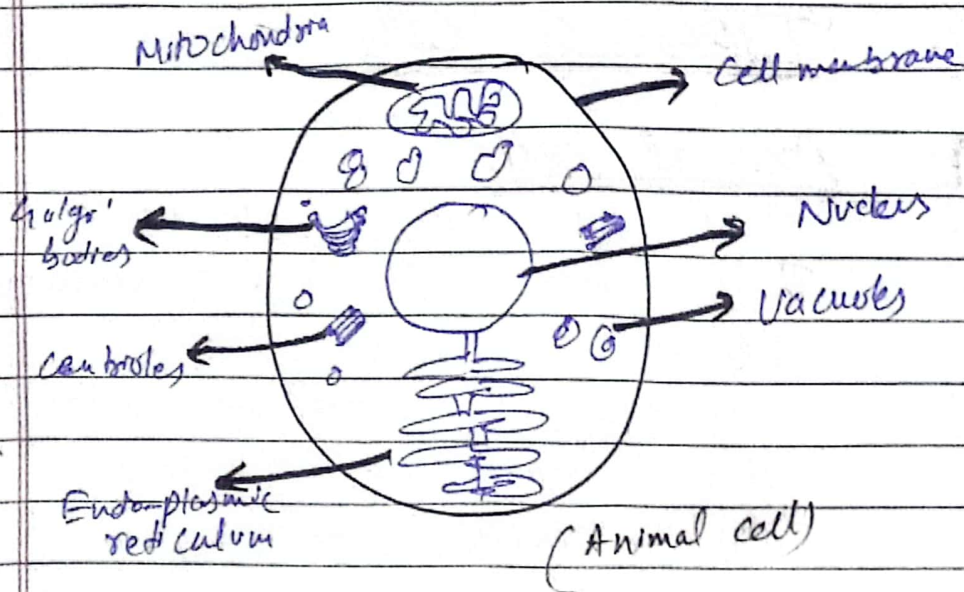
B) Plant cells:

- (i) They have a strong cell wall
- (ii) They possess one large vacuole
- (iii) Nucleus is present at one corner
- (iv) They have chloroplast for synthesis of food.
- (v) Mostly, plants contain no centrioles, except ^{some} higher plants

C) Microorganism cells:

- (i) They have no proper cell organelles
- (ii) DNA (De-oxyribonucleic acid) is scattered throughout the cell
- (iii) Ribosomes are small in size. i.e. 80s (swedberg)

(iv) They have various vacuoles such as food vacuole and water vacuole.



Q.2

(a)

1. $SO_2 + NO_x$

Both of these are pollutants which are mainly produced by combustion of fuel at high temperatures.

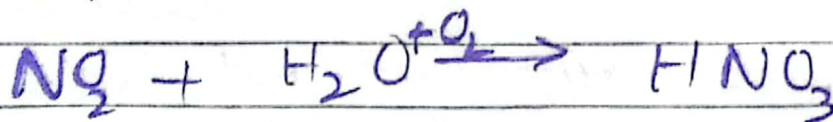
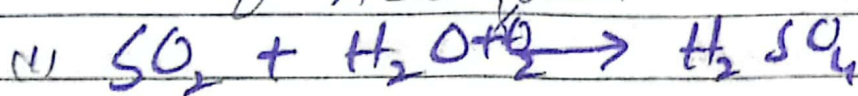
R. Increasing level of $SO_2 + NO_x$ as a threat:

Increasing level of $SO_2 + NO_x$ is considered as a threat because of following reasons.

A. Formation of Acid Rain

SO_2 and NO_x react with moisture, present in air, and produce H_2SO_4 and HNO_3 respectively.

Both these are acids and cause to drop the pH of normal rain below 5.6 pH. Hence become the cause of Acid rain.



(b) Affecting Aquatic Life:

Acid rain affects the life of aquatic and marine organisms.

When it falls on these water bodies.

(c) Erosion of soil:

Acid rain also leads to erosion of soil. When acid rain falls on soil, it reacts with its important metals and renders it infertile and causes erosion.

(d) Affecting the beauty of buildings

Apart from this, Acid rain also tarnishes the beauty of marble-made buildings. For example Taj Mahal is losing its beauty owing to acid rain.

(b)

1. Green house Effect:

When the green house gases present in atmosphere such as CH_4 , CO_2 , NO_x etc trap the light inside earth's atmosphere and do not leave it to radiate back, the effect produced is called - Green house effect.

It is a normal phenomenon, which occurs all day and helps in maintaining the average temperature of the earth.

R- Significance of GHE

GHE plays a vital role in

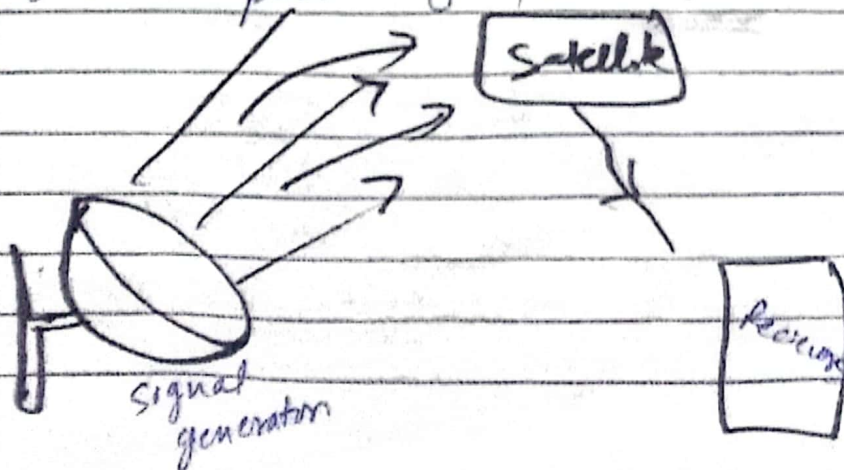
maintaining the normal earth temperature. Similarly, it helps in growth of plants. As this process is also used by nurseries.

3. Enhanced Green House Effect.

When green house gases are emitted excessively in the atmosphere, it will disturb the normal phenomenon. And as a result more heat is trapped inside the atmosphere than normal condition. This leads to increased global temperatures. As according to United Nation's Framework Convention on Climate change, earth's temperature has risen upto 1.2°C owing to enhanced green house effect.

1. Remote sensing:

Remote sensing is a new and advanced technological method by which signals are sent to longer distances for exploring various parts of the universe.



2. Importance in Environmental Sciences

(A) Detecting Climate patterns.

Remote sensing helps in finding weather patterns. What is the ratio of rainfall? Where will the winds blow? All can be explained by Remote Sensing.

(B) Exploring minerals:

Now a days, various types of minerals, including gold, copper, and platinum, can be detected by remote sensing.

(C) Disaster management

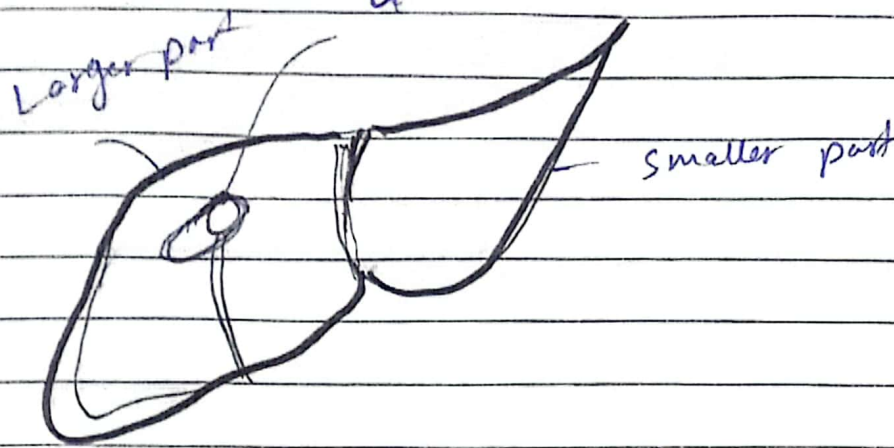
Remote sensing is now widely used in disaster management as well. As it helps in finding the exact location and origin of disasters.

(D) Identifying volcanic eruption

It also helps in identification of volcanoes by sensing the warmth of a specific area.

1. Liver: (d)

Liver is brown coloured organ present inside the chest cavity just above the stomach. It has two parts: one large, one small.



(Diagram of Liver)

2. Liver: Chief chemist of body:

Liver performs several functions for which it is considered as chief chemist of the body.

(A) Emulsification of fats

Liver produces bile juice, which helps in emulsification of fats.

(B) Detoxification of drugs

Liver acts as a ~~detox~~ detoxicating agent, and detoxifies the toxic nature of substances.

(C) Deamination:

Similarly, it ~~is~~ also breaks down the protein molecules to amino acids and to further smaller units.

(D) Urea Formation:

Liver also helps in urea formation through ornithine cycle.

(E) Production of blood: In embryonic

Date: _____

Day: _____

stage, mostly blood is formed
in liver and spleen. Hence
it aids in blood production.

~~_____~~