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Batch 001

be in discussion class for detailed review

Q#1.

(a) Working of the Human Heart

1. Introduction

Human heart is the organ responsible for the circulation of the blood. It is referred as the double circulation system of the blood. It carries deoxygenated blood from body to the heart and pumps back oxygenated blood to the body. Heart plays a role of circulatory system and transport nutrients to the body. In short, heart is the crucial organ of the body; with each heart beat, life is ensured.

2. Working of the human heart

Human heart has a working principle of double circulation. It contains arteries, veins and capillaries to perform this task.

a) Blood vessels of the body

1) Arteries:

Arteries carry oxygenated blood from heart to the body. Pulmonary artery is the vessel which carry deoxygenated blood.

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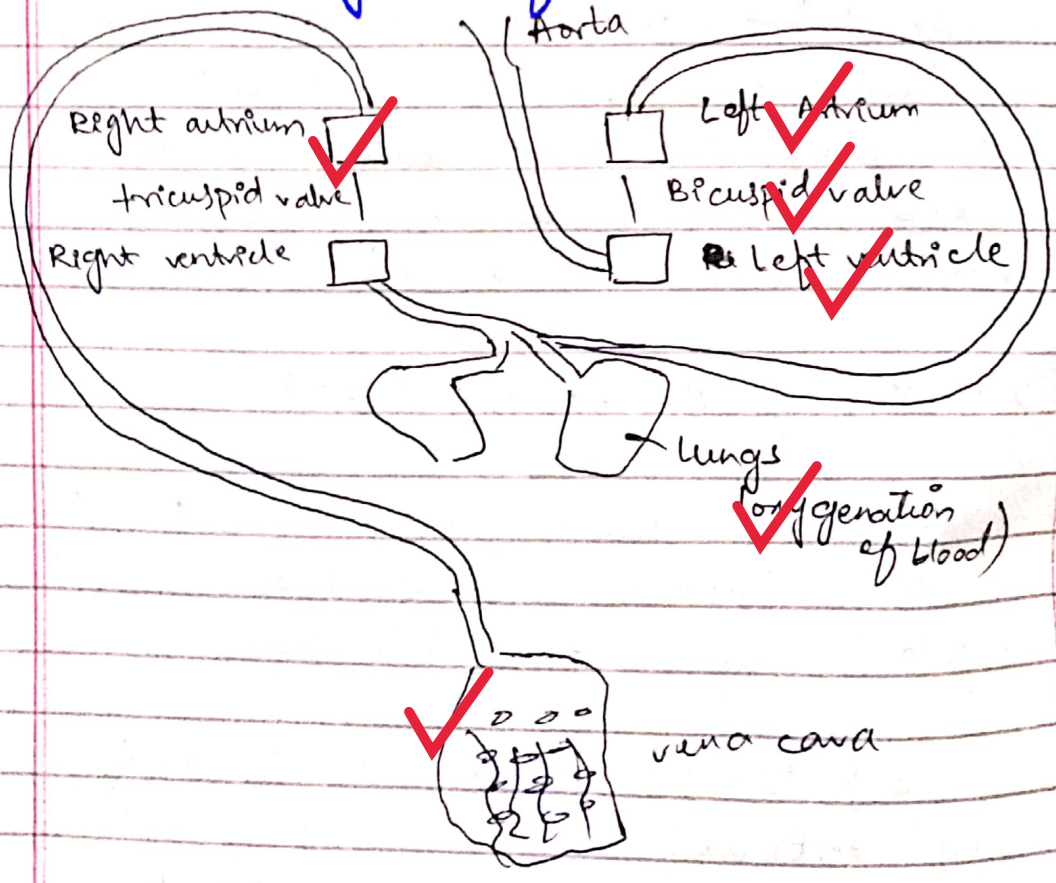
ii) Veins

Veins carry deoxygenated blood from body to the heart except pulmonary vein. The blood pressure remains lower here.

iii) Capillaries

They perform the role of junction and carry both types of blood.

b) Diagram of heart



c) Working Principle

Right atrium contracts and blood enters into the

body - Afterwards, Tricuspid valve ensures and prevents the back circulation of blood. Then, blood goes to right ventricle. Similarly, from left ventricle to left [illegible]rium and then blood is pumped through pulmonary vein to the lungs. This cycle continues and oxygenated blood is provided to the body.

Confusion hai....

3. Conclusion

Heart is the organ responsible for the circulation of blood through blood vessels. Each cycle pumps blood to the body after oxygenated and the cycle of life continues.

(b) Working of Eye

1. Introduction

Human eye is a sensory organ which provides sensory information in the form of visuals. Human eye contains layer, each layer has a specific function to perform, from receiving light to reflecting back image, eye has a function to perform. Eye not only has a function of providing visuals but it also contains layers to protect it from unwanted particles.

2_ Working of the Eye

(i) Leght enters into the eye through cornea

Light enters into the eye through cornea which is outermost in frontal side. It interacts with light and bend those lights.

(ii) Pupil ~ a hole to pass light into eye

Pupil is a small hole to pass the light received at the cornea into the eye.

(iii) Function of lens and retina

lens perform the function of receiving light waves and focusing the light waves. Retina contains photo receptors to convert light waves into the action potential.

(iv) Function of optic nerve

Optic nerve convey the messages to the brain in the form of visuals.

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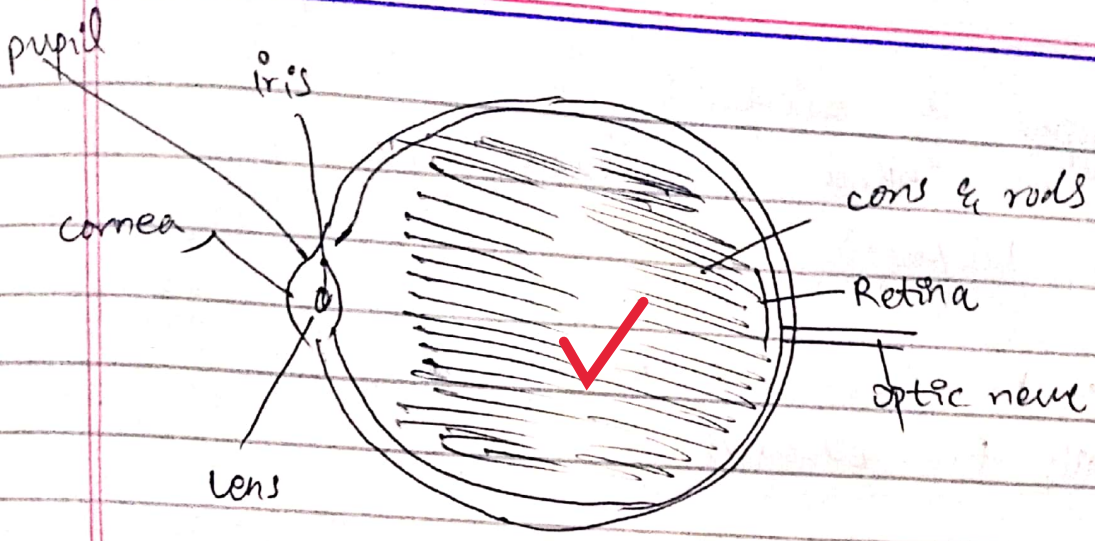

Diagram of eye

3_ Conclusion

Eye carries information in the form of light through cornea. Afterwards, pupil provides a passageway to the light. Then, lens and retina provide focusing to the lightwaves and optic nerve sends the visual information to the brain after processing.

(c) Biofuels and their production

1_ Biofuels are the derivatives of biomass as the name says

They can be derived from the biological materials like animal waste, animal dung, crops remains, plants wastes and sugarcane or oil rich plants.

2- Types of Biofuel

There are three types of biofuels

i) Biodiesal ii) Bio-gas
iii) Bio-ethanol

3- Production of Biofuel

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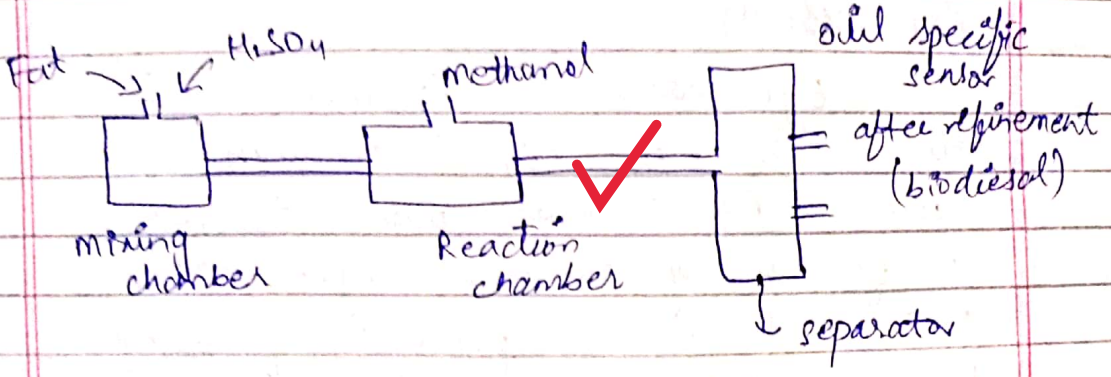

multiple chambered equipment

This method produce biodiesal after refinement. Sulphuric acid is put into the mixing chamber to ensure mixing properly. Methanol helps in the oil extraction.

4- Conclusion

Biofuel produced through the biological material help to emit lesser quantities of CO_2 and NO_x. It is used in vehicles, industries and railways. But, the availability and the reliability of biofuel is yet to

be examined.

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(2) Plants Animals Microorganisms

i) Plant cells

Plant cells are eukaryotic cells that contain a membrane-bounded nucleus and cellular organelles.

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Size of the cell

size of the cell is 10 - 100 μm.

Shape of the cell

Plant cell is rectangular in shape.

Presence of organelles and cell wall

cell wall, nucleus, plasmids and mitochondria is present.

ii) Animal cells

Animal cells are eukaryotic cells that contain a membrane bounded nucleus but cell wall is absent.

Size of the cell

10 - 100 μm

Shape of the cell

Round or oval shaped

Absence of cell wall

Cell wall is absent in animal cell.

iii) Microorganisms

Microorganisms are prokaryotic cells. They have different shapes cocci, bacillus, and spirilla. Cell wall is present. Centrioles are absent. Size of cell is 0.2 to 2 µm.

Q#2

Increasing levels of SO_2 and NO_2 as Threat

1) Primary Pollutants

NO_2 and SO_2 are primary pollutants which are already present in the atmosphere.

ii) The increase in the percentage of primary pollutants

The increase in the ratio of primary pollutants in the

air causes threat to the land mass, animals, humans and aquatic life.

iii) Sources of NO_x and SO_x

NO_x is increasing in the atmosphere due to the increased used of pesticides. SO_x is increasing due to the use of internal combustion engines, deforestation, burning of fossil fuels and industrialization.

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ii) Reaction of primary pollutants to form secondary pollutants

Primary pollutants are reacting to form secondary pollutants like tropospheric ozone and acid rain which results in the dangerous threats.

a) Acid Rain

When the precipitation has PH value more than 5.6 is known as acid rain.

$$H_2O + NO_x \longrightarrow HNO_3$$
$$H_2O + SO_x \longrightarrow H_2SO_4$$
$$H_2O + CO_x \longrightarrow H_2CO_3$$

b) Tropospheric Ozone

Tropospheric ozone is produced due to the reaction of CO_x, NO_x, SO_x in the atmosphere.

Ozone is good up high, bad nearby ✓

The Stratospheric ozone helps to protect Earth from UV rays whereas tropospheric ozone is hazardous.

v) Increased ratio resulting in global warming ✓

Increased ratio of SO_2 and NO_2 is a threat because they react to increase level of tropospheric ozone. Due to which the temperature of Earth is rising resulting in global warming.

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⑥ Significance of GHG

GHG are significant because they help to protect earth from UV rays.

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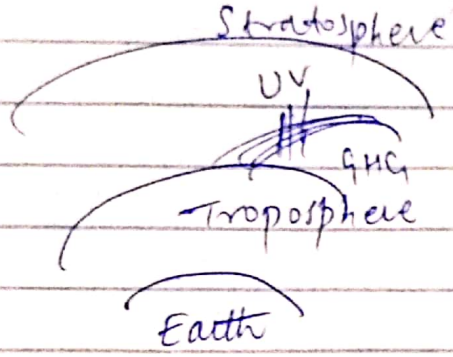
When UV rays enters into the troposphere, they affect the biodiversity, humans, aquatic life and landmass.



GHG provides a shield to the earth.

By the time, green house effect is reducing the Earth's resilience to the threat.

ⓒ Remote Sensing