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Test - 2
General Science
M. Mahroz Adan (001)

Question no 1 :-

Answer (a) :-

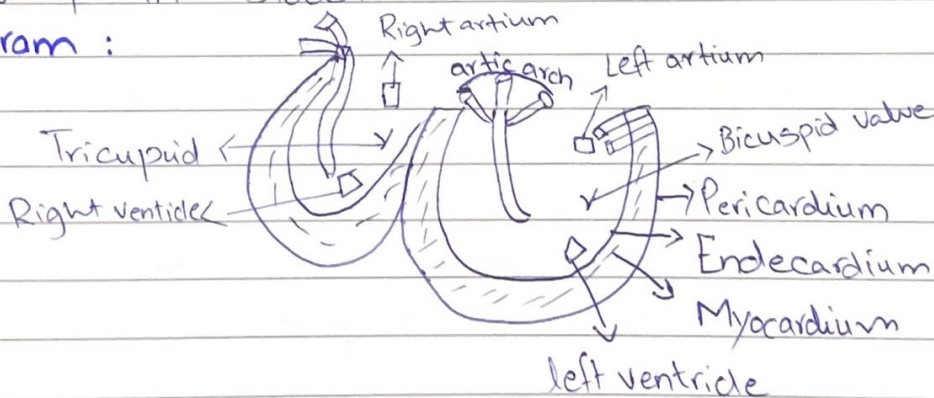
Human heart

Human heart is a strong muscular organ which pumps the blood across the body. It has been surrounded with three main layer Pericardium, Myocardium, and Endocardium. The heart possess four chambers in it

- 1) Right Atrium
- 2) Right ventricle
- 3) left Atrium
- 4) left Ventricle

These chambers are responsible to pump the blood. There is a presence of tricuspid valve on the right side and Bicuspid valve on the left side, These valves are responsible for block flow of the Blood.

Diagram :



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Body of heart

Different Veins arise from the different parts of the body, which collect / carries deoxygenated blood.

functioning of Heart

All the deoxygenated blood will be collected by veins from the entire body, and it will be kept in (Vena cava) then it will be sent to the right atrium it will contract and move it to right ventricle.

Right ventricle will contract and push forwards to lungs through pulmonary artery. Lungs contain oxygen so oxygenation take place. Afterward the blood will be pushed forward to left atrium through pulmonary artery then it will be contracted and it will be pushed toward left ventricle through Bicuspid valves and left ventricle will push it toward aortic arch and it will be pushed toward lower body.

For contraction and relaxation there is a need of electric impulse which are generated by the nodes of the heart.

→ Heart beats 72 times per minute

→ For 1 beat it takes 0.8 second.

→ About 5ml blood comes from contraction.

→ In Average 5 Liters of Blood presents in human body.

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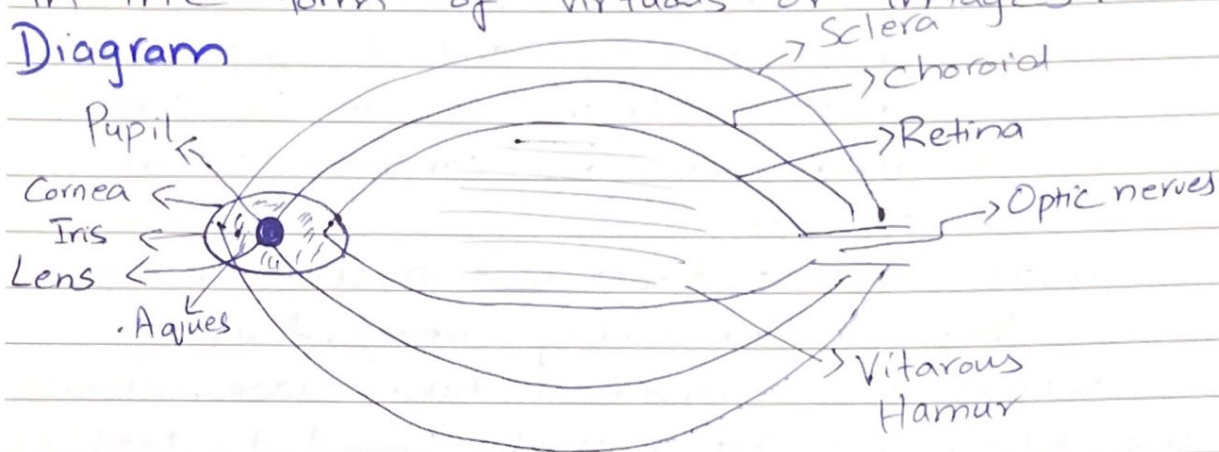
Question 1

Answer (b)

Human Eye

Human Eye is a Sensory organ and it is responsible to provide Sensory information in the form of virtuals or images.

Diagram



a) Cornea

It is an outermost transparent layer which interacts with light waves. It is responsible for bending of light waves.

b) Pupil

It is a small hole from where light enters into the eye.

c) Lens

Reception of light, lens is responsible for focusing of light.

d) Iris

It is responsible for control of pupil's movement.

e) Retina

It is inner most layer, most sensitive. At retina conversion of light waves into an image takes

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place with help of cones and rods at photo receptor.

f) Optic Nerve

Optic Nerve transmit image toward brain, and it will help in recognition.

g) Sclera

It is outer most layer which protects the internal content of eyes

h) Chroid

It is the thick reddish part, it is involved in nourishment of eyes.

i) Aqous.

It is fluid filled region - faces frontal site of light.

Human Eye is one of the most important organ of the human body for vision.

Human Eye have various condition in which it do not performs properly:

- 1) Short Sightedness
- 2) far Sightedness
- 3) Night Blindness
- 4) Color Blindness

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Question no 1

Part (c)

Bio Fuels

Those fuels which are derived from biological material or Biological waste.

Some material that is used to produce biofuels are:

- 1) Plant Waste
- 2) Animal waste; Dung
- 3) Crops remains; Agricultural waste
- 4) Oil rich sources (waste); mustard, oily seeds etc
- 5) Sugar cane
- 6) Sugar Beet

Types of Bio fuel

There are commonly three types of Biofuel and Discussed below:

1) Bio Diesel & its Production

Bio Diesel is produced using oily raw material. For producing bio diesel we need transesterification machine with multiple Chambers

→ **Mixing Chamber**: In which H_2SO_4 is added with raw material, it will mix and reaction will cause in reaction chamber and then oil and methane will be separated and oil will be passed to separator.

→ Separator & refining

After Refining Separation oil will be sent for refining and after refining. The standard

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iesel is done.

Benefits & Uses

→ It is more clean and it emits lesser amount of CO_2

→ It also emits lesser amount of SO_2

→ It can be used in :

- 1) Railway usage
- 2) Regular usage
- 3) Industrial usage
- 4) Generators.

2) Bio Gas & its Production

It is also a type of Biofuel. Biogas is produced through various types of organic waste like animal Dung. Bio gas is a mixture of methane, Carbondioxide, 70% & 30% respective ratios.

It is renewable and environment friendly fuel made from 100% local feedstocks.

Production Bio gas is done by crushing biowaste in smaller pieces and prepare it for adding liquid and afterward it needs warm condition

So it is heated. The actual biogas production

takes place through anaerobic-digestion in large tanks for about three weeks and

finally the gas is ready to use.

uses & Benefits.

→ It is used in road vehicle fuel. and industrial used.

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-> Bio ethanol

It is also a type of Biofuel. It is produced using various processes:

- 1) treatment to separate hemicellulose from cellulose
- 2) hydrolysis of cellulose to obtain fermentable sugar.
- 3) fermentation to convert sugar into ethanol.

Benefits

- > It is renewable, non-toxic
- > mitigate Global warming.
- > reduce air pollution.
- > reduce GHG.

Question no 1

(Part d)

Plant cell

Plant cell have cell walls composed of cellulose, hemicellulose, and pectin and constructed outside the cell membrane.

Animal cell

Animal cell are eukaryotic cell with a membrane-bound nucleus.

Microorganism cell

It can be unicellular (single cell), multicellular or acellular (lacking cell). They include bacteria, archaea, fungi & protists.

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Differences

Plant Cell	Animal Cell	Microorganism Cell.
1) Eukaryotes	1) Eukaryotes	1) Prokaryotes
2) Cell membrane	2) Cell membrane	2) Cell membrane
3) Nuclear membrane	3) Nuclear membrane	3) ^{No} nuclear membrane
4) No cell wall made of cellulose	4) No cell wall	4) Cell wall made of Peptidoglycan.
5) Small	5) Smaller	5) Smallest.

Question no 2

Part (a)

Sulfur Dioxide SO_2 and Nitrogen Oxide NO_x are increasing and these both are not good for environment.

SO_2 increasing effects

Sulfur dioxide can damage trees and plants, inhibit plant growth, and damages sensitive ecosystems and waterways. It also contribute to respiratory illness and aggravate existing heart and lung conditions.

Causes of SO_2

These gases are formed when fuel is burned at high temperatures.

These SO_2 can cause respiratory problems such as bronchitis and can irritate nose, throat and lungs.

NO_x increasing effects

NO_x nitrogen oxide is usually used to include two gases - nitric oxide and nitrogen dioxide.

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High level of NO_x can cause Breathing problems, rapid burning, Spasms and Swelling of tissues in throat and upper respiratory tract and reduce oxygen of body.

Causes of NO_x

This gas is also produced when fuel is burned at high temperatures. NO_x pollution is emitted by Automobiles, trucks and various non-road vehicle.

Both these gases are responsible in global warming and Acid rain. International efforts can reduce these threat of life from NO_x and SO_2 .

Question no 2

Part (c)

Remote Sensing.

Remote Sensing is a Science together information related to any geographic area or location by using the sensor.

- 1) Source of energy; to make vision
- 2) Interaction of radiation with Atmosphere
- 3) Interaction of radiation with target interest.
- 4) Recording of reflected energy by the Sensors.
- 5) Transmission
- 6) Interpretation & analysis
- 7) Application

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Roles and Benefits.

- 1) It help in enviornmental monitoring
- 2) It helps in identifying source of pollution.