Test #4

Question #01

26/40

(a)

Explain the enhanced GHE in context of global warming.

When the sunlight reaches the earth surface, it can be either reflected back or absorbed by the Earth. Once absorbed, the Earth releases some of the energy as heat (known as infra red radiations). Greenhouse gases like water vapours, carbon dioxide and methane absorb energy. This prevents the heat to left atmosphere, results in the rise of Earth wea temperature. This process is called 'green house effect' Since the industrial revolution in 1975, human activities have contributed to the climate change by releasing a large amount of carbon dioxide and other green house gases. These green house gases have increased the green house effect and caused the Earth surface temperature to rise. Therefore, it is called

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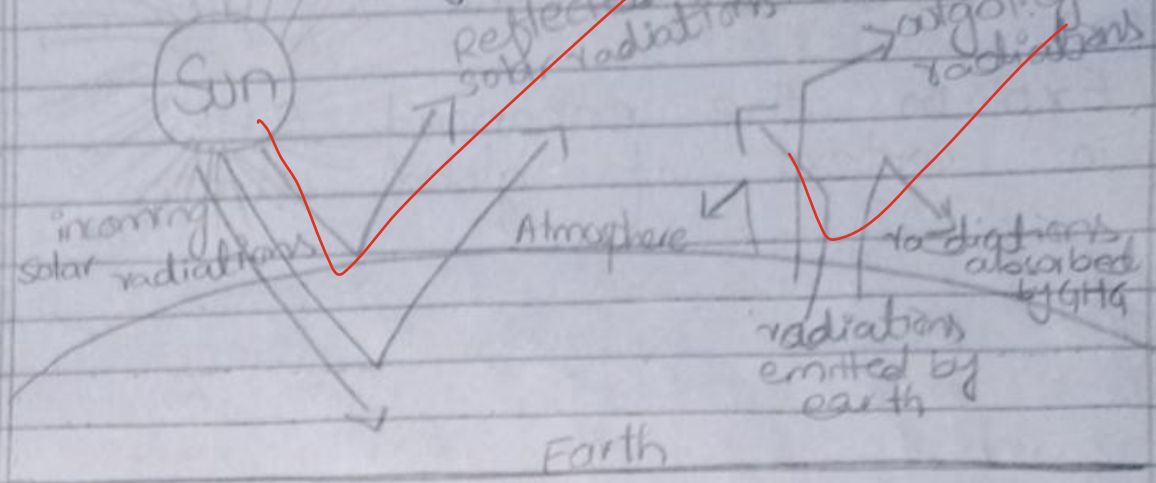
enhanced green house effect:



(b) Explain the role of heart in human body.

The main parts of blood circulation in human body are heart and blood vessels. Everyday, the heart pumps about 2000 gallons of blood, beating about 100,000 time. It plays a vital role in sustaining life by ensuring ~~Oxygen~~ supply of oxygen, neutrients, and harmones to all tissues.

Pumping and circulation of Blood:

The primary role of heart is to pump and blood. With every heart beat it pushes oxygenated blood to entire body. This

ensures that every cell receive oxygen and neutrients required for energy production.

Oxygenation of Blood:

The heart works closely with the lungs. It pumps deoxygenated blood to lungs where CO_2 is exchanged for oxygen.

Distribution of Neutrients and Harmones:

Blood pumped by lungs not only carries oxygen but also neutrients and harmones. They reach the targeted tissues and help regulate various bodily functions including growth, metabolism and immunity.

Removal of Waste Material:

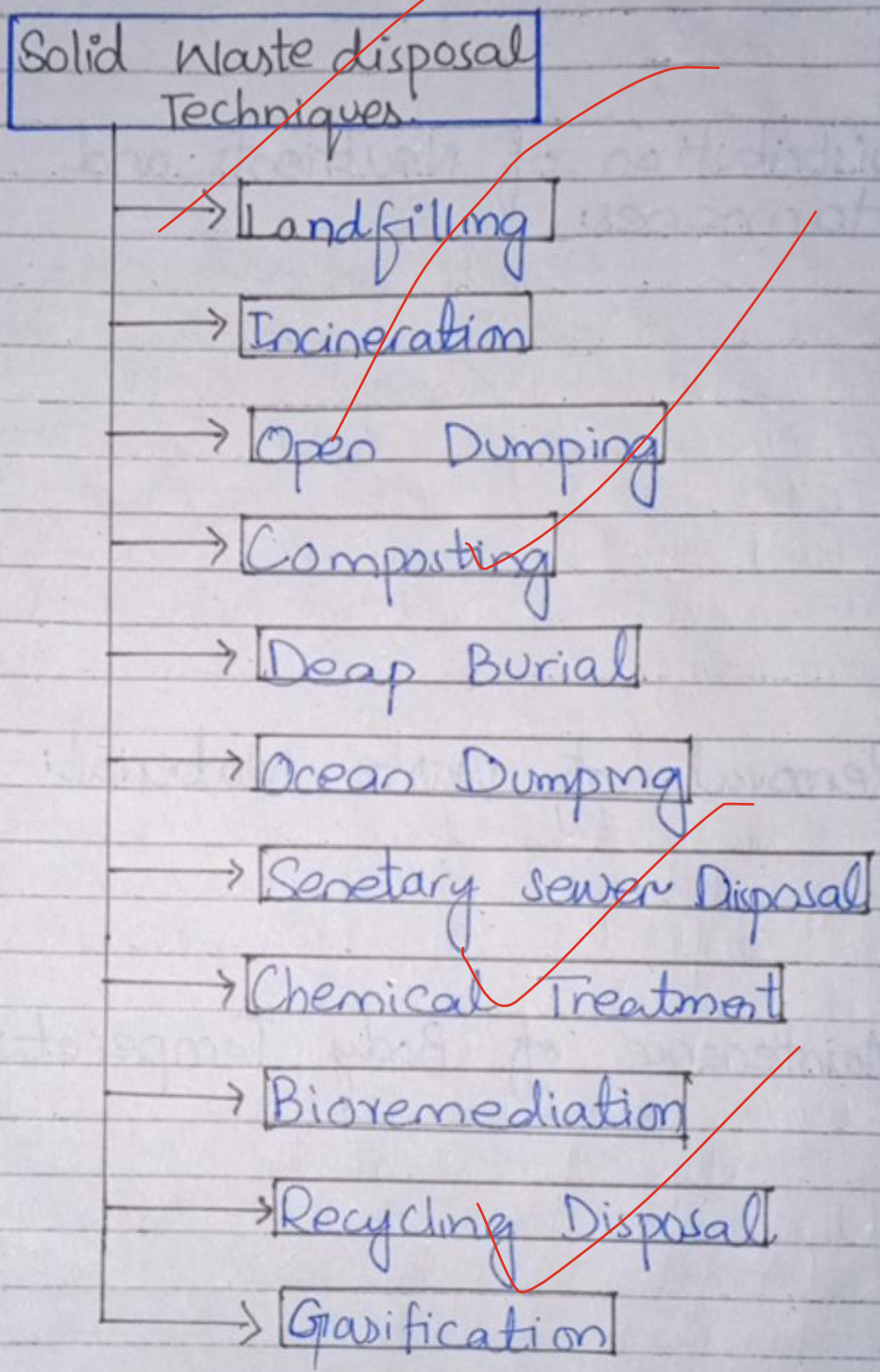
By transporting blood to organs like lungs, Kidney and liver, heart enables the body to filter and expel harmful substances.

Maintenance of Body Temperature:

Through constant blood circulation, it helps to distribute heat through out the body. When needed, blood flow to the skin increases or decreases to help regulate temperature.

(c) Explain the waste disposal techniques.

Any waste material produced from domestic, industrial or commercial permises is disposed through different techniques



1. Landfilling: A technique in which solid waste is dumped in sanitary landfills.

2. Incineration: Burning the solid waste to reduce its volume

3. Open Dumping: An unsafe method of waste, in which waste materials are dumped into an open land area

4. Composting: Biological decomposition of waste into manure

5. Gasification: Using oxygen converting the waste into gas fuel.

6. Deep Burial: In this technique waste is buried deep underground.

7. Ocean Dumping: An environmentally harmful technique of waste disposal by disposing waste in seas or ocean

8. Sanitary Sewer Disposal: Liquid and semi liquid waste discharged into sewage system

9. Recycling Disposal: Processing of waste materials (paper, plastic, glass) into new material

Chemical Treatment: Using chemicals to neutralize harmful or hazardous waste.

Bioremediation: Using microorganisms to break harmful materials.

(d)

Give the structure and working of human eye.

Eyes are vital for seeing the world, but vision can be impaired by medical conditions as well as aging procen.

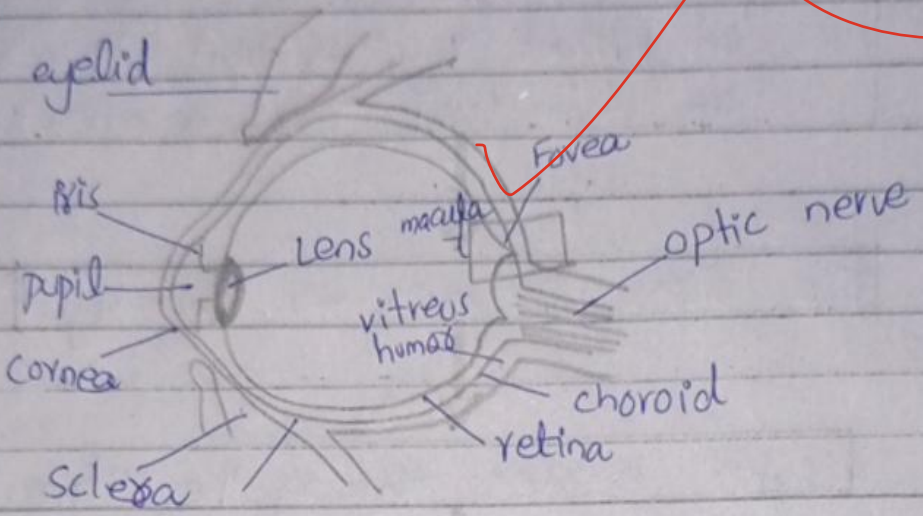
Structure of Eye:

The front part of eye includes:

1. The iris (pigmented part)
2. The cornea (clear dome over iris)
3. The pupil (black circular opening in iris which lets light in)
4. The Sclera (white part)
5. The Conjuctive (an invisible, clear layer of tissue covering eye's front except cornea)

In the back of eye, are important parts that cannot be seen using mirror. They include

1. Lens
2. Vitreous body
3. Retina
4. Macula
5. Optic nerve



Working of Human Eye:

The human eye works by receiving light, focusing it on the retina, converting it to signals and sending them to the brain to form a clear image. This coordinated process allows a human to perceive shapes, colors and movement accurately.

Working of Human Eye

Light enters through the cornea

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Light passes through the aqueous humour

↓

The pupil controls amount of light
in bright light → pupil becomes smaller
in dim light → pupil becomes larger

↓

The lens focuses the light

↓

Light passes throug the vitreous humor

↓

Image formed on retina

↓

Optic nerve carries signals to braid

↓

Brain interprates the signals

↓

An mage formed in the brain

Question #02

(a) What is Water pollution? Explain its types and give measures.

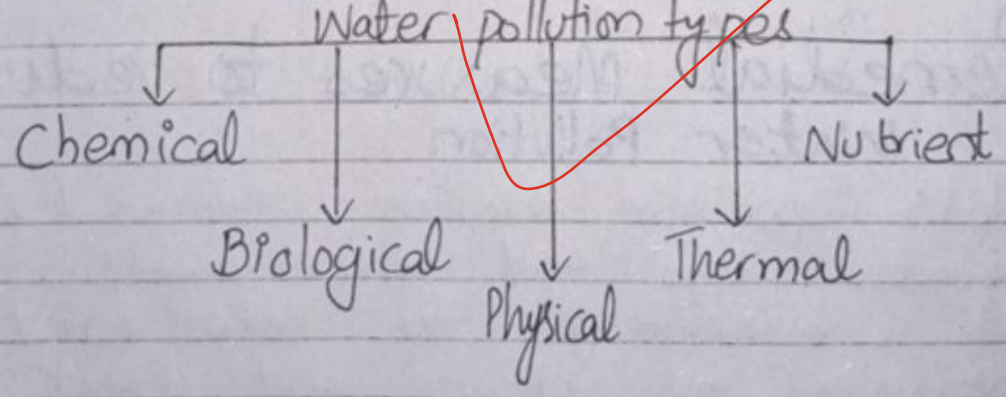
Water Pollution:

Any physical, chemical or biological change in the properties of water that may cause harmful effects is known as water pollution. Water pollution is "the contamination of water bodies (lakes, rivers, canals, ocean etc) often by anthropogenic or natural activities."

Types of water pollution:

Some main types of water pollution are:

1- Chemical Pollution
2- Biological Pollution
3- Physical Pollution
4- Thermal Pollution
5- Nutrient Pollution



Chemical Pollution:

Contamination by harmful chemicals like pesticides, fungicides, industrial waste or heavy metals and acids

Biological Pollution:

Caused by pathogens such as bacteria, viruses, and other microorganisms

Physical Pollution:

Includes sediments, rocks, plastics and debris that change water quality or clarity.

Thermal Pollution:

Rise in water temperature due to industrial waste or power plants, affecting the aquatic life.

Nutrient Pollution: (Eutrophication)

Excess nutrients like phosphorus and nitrogen from fertilizers leading to algal blooms.

Remedial Measures to reduce Water Pollution

Water pollution harms human health, aquatic life and environment.
It is essential to take remedial measures to clean and protect the water resources.

Some methods to protect water resources are.

- **Waste Water Treatment:**
  Treat industrial and domestic water before relearing it into water bodies
- **Proper Solid Waste Management:**
  Prevent dumping of plastic, glass and other solid wdte.
- **Industrial Regulations:**
  Enforce laws to control discharge of toxic chemicals, heavy metals and untreated liquid.
- **Oil Spil Control:**
  Use booms, skimmers and dispersants to contain and clean oil spils
- **Public Awareness:**
  Educate communities about water conservation and pollution prevention
- **Sewage System Improvement:**
  Develop sewage sys network in urban areas to prevent untreated seawage from entering rivers
- **Restoration of polluted water bodies:**
  Remove sludge and sediments from polluted lakes and rivers.
- **Reducing Chemical Runoff:**
  Minimize the use of pesticides, fertilizers and chemicals in agriculture.
- **Legislation and Enforcement:**
  Implement strict water pollution control laws. Penalize offenders and incentivize industries that practice sustainable water management.

(b) What is cell? Differentiate in between plant, animal and Microorganismic cell.

Cell:

Cell is the unit of structure and function of all living things. The cell that make our body are so small that one cannot see a single cell with naked eye. Cells are of different kinds based on their characteristic. One division separate them into two groups include eukaryotic and prokaryotic.

Difference between animal, plant and microorganismic cells:

Feature	Animal Cells	plant cells	Microorganismic cell
Cell Wall	Absent	Present	Usually present
Shape	Irregular/round	fixed/usually rectangular	Varies: spherical, rod-shaped, spiral
Chloroplast	Absent	Present	Present(algea), absent in bacteria
Vacuole	Small or temporary	Large central vacuole	Small or absent
Nucleus	Present	Present	Present on eukaryotic microbes, absent in prokaryotic microbes
Example	Human, dog, cat cells	leaf, stem, root cells,	Bacteria, yeast, algea

(c) How food digests in the human body?

In humans, proteins must be broken down into amino acids, starches into simple sugars and fats into fatty acids and glycerol. The process of breaking down food by mechanical and enzymatic action in the stomach and intestines into substances that can be absorbed by the blood. It involves the several organs working together.

1. Mouth, The Starting Point:
Digestion begins with the chewing of food. Teeth break food into smaller pieces. Saliva mixes with food and contains enzymes like amylase that start breaking down carbohydrates.

2. Esophagus, The Food Pipe:
After swallowing food moves along a long tube called the esophagus. Masculer movements called peristalsis push the food into stomach.

3. Stomach, Breaking down food with Acid:
Stomach churns the food and

mixes it with gastric juices. Stomach acid (HCL) and enzymes break down proteins. Food becomes a semi liquid mixture called chyme

4. Small Intestine - Main site of digestion and absorption: Most digestion happens here:

a. Duodenum
Enzymes from pancreas break down carbohydrates proteins and fats. Bile from the live and gall bladder help digest fats.

b Jejunum and ileum:
Nutrients (glucose, amino acids, fatty acids, vitamins, minerals) are absorbed into the bloodstream through tiny finger like projections called villi.

5- Large Intestine, Water Absorption:
Remaining undigested food moves into the large intestine. Water and salts are absorbed here. Gut bacteria help break down some leftover substances. Waste becomes solid (feces)

6- Rectum and Anus, Removal of Waste:
Faces are restored in the rectum. Waste leaves the body through the anus during a bowel treatment.

(d) What is GIS? Give its environmental applications.

A geographic information system is an organized collection of computer hardware, software, geographic data, and personnel designed to efficiently capture, store, analyze, manipulate and display all forms of geographically referenced information

Environmental Applications of GIS:

It has a wide range of applications in the environment Some important uses includes

Monitoring Environmental Risk

It supports early warning systems and targeted mitigation planning.

Modelling Storm & Water Runoff

GIS analyze rainfall, slopes and land cover to predict runoff patterns. This helps in designing drainage system and reducing urban flooding.

Management of Watershed, floodplains, wetlands, frests, aquifiers

GIS maps natural resources to understand ther health and distribution. It supports conservation, sustainable use and disaster resilient planning.

Environmental Impact Analysis
GIs enables better decision making during development projects and ensures compliance with environmental laws.

Groundwater modelling and contamination tracking:
It helps to locate groundwater resources and model their recharge and flow. It also tracks pollution plumes to prevent contamination and protect water quality.