

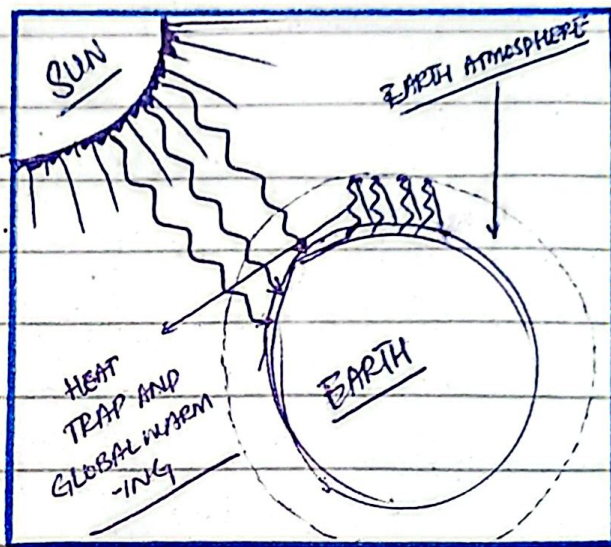
Q NO 1 (a)

Explain GHE in the context of global warming.

The green house effect (GHE) is earth's natural warming process, intensified by anthropogenic reasons, where atmospheric gases like water vapour, methane, and Carbon dioxide trap heat from Sun and prevent it to escape into the atmosphere.

This results in warming of the globe which thus attracts the life on earth.

Sunlight warms the Earth but the Green house gases absorb it and help reemit it into



atmosphere but, due to the human activities like fossil fuel usage, carbon emission, intensified the effect and causing global warming.

Global warming is the increase in average ideal temperature of the planet earth. This leads to climate change, water level rise, extreme weather events and melting ice (Glaciers and arctic region). This phenomenon is gradually took place since industrial revolution 1850.

Green house gases, which cause global warming include: Carbon dioxide, methane, nitrous oxide and CFCs (Chlorofluorocarbons).

(2)

(b)

What are vitamins? Give its types, functions, sources and deficiency disorders.

Vitamins are the small organic micronutrient required by the body for normal growth, immunity, and health. They are not produced by the body (most of them) and obtained through food.

### Types of vitamins

#### Fat soluble vitamins

- 1) Stored in body fat and liver
  - 2) Can cause toxicity if intake excessive
- Vitamin A, D, E, K

#### Water soluble vitamins

- 1) Not stored in body
- 2) Need daily through balanced diet
- 3) Excess flush through urination

Vitamin B complex and vitamin C

### Detailed account of vitamins with source and disorder

#### A - Fat soluble vitamins

|    |   | Function                 | Source                       | Disorder                                      |
|----|---|--------------------------|------------------------------|-----------------------------------------------|
| 1) | A | Vision, skin             | Carrot, milk                 | night blindness, eye sight weak               |
| 2) | D | Bone health              | egg yolk, sun light          | Rickets                                       |
| 3) | E | Cell health protector    | vegetable oils and dry fruit | orthopedic issues, Bone weakness              |
| 4  | K | blood clotting platelets | Green leafy vegies           | nose bleeding, excessive bleeding from wounds |

### B- Water Soluble Vitamins

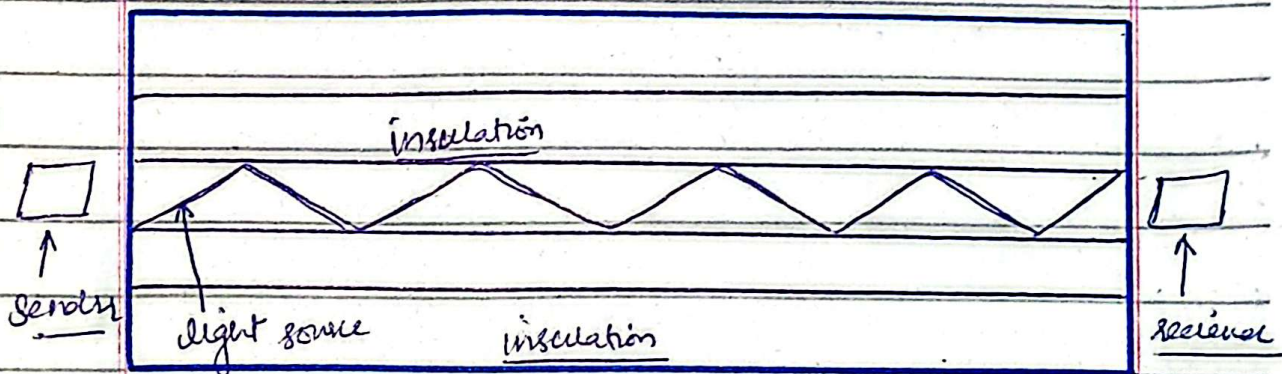
| Vitamin                                      | Function                             | Sources                                     | Disorder                              |
|----------------------------------------------|--------------------------------------|---------------------------------------------|---------------------------------------|
| B (complex)<br>1, 2, 3, 4, 5, 6, 7,<br>9, 12 | Nerve, heart<br>and immune<br>health | Fruits, whole<br>grains, eggs<br>white meat | hair loss<br>dermatitis               |
| Vitamin C                                    | collagen formation                   | citrus fruit<br>orange, lemon               | Poor wound<br>healing<br>gum bleeding |



(C)

Define optic fibres and describe its importance.

Optical fibre is the strand of glass or plastic which carries light signal instead of electricity in microseconds. It works on the principle of total internal reflection. It is thinner than human hair and used for the data transmission upto gigabytes in microseconds.



Fiber optics

### Importance of fibre optic

Fibre optics is very important for the high speed internet signals and broadband technologies. Long distance video calls and messages are sent

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depend on the fibre optics. Similarly, it is used in medical fields for endoscopy and internal imaging of body. It is very useful for secure and fast communication especially in defence field. HD video transmission from the satellite and Data center networking are some of the important characteristics of the optical fiber.

(d)

**Define water pollution. Give its types, Sources and controlling measures.**

Water pollution is the contamination of the water bodies (lakes, wet lands, rivers, ground waters and oceans) due to the anthropogenic toxicity introduction that degrades water quality and unsafe for human, animals, plants and ecosystem overall.

### Major types of the water pollution

#### **i) Industrial wastes**

Toxic chemical and other wastes mixed in water streams.

#### **ii) Agriculture runoff**

Fertilizers, pesticides and herbicides pollute water.

#### **iii) Domestic sewage**

Detergents, organic wastes and biodegradable wastes.

#### **iv) Plastic pollution**

Plastic breaks down into microplastics, contaminates water broadly.

## Measures to minimize water Pollution

### i) Proper disposal of toxic chemicals

creation of dumping centers instead of washing into drains.

### ii) Use of eco-friendly chemicals

Biodegradable detergents and use of organic pesticides.

### iii) Industrial emission control

June filters in the industry to control emission that result in hazardous wastes.

### iv) Reduce, recycle, reuse

i) Reduction of wastes and production

ii) Recycle non-biodegradable substances

iii) reuse in irrigation.

## Q No 3 (A)

What are the effects of global warming on Pakistan? And propose suggestions

Global warming refers to the long term rise in Earth's average temperature due to increased greenhouse gas emission. Pakistan contributes only 1% in global emissions but it is among the top 10 most vulnerable countries across the world due to the global warming and climate change:

"Pakistan is at 6<sup>th</sup> globally which is the most vulnerable due to climate change"

(German watch deg climate index)

(b)

### Effect of Global Warming on Pakistan

i) Rising temperature and heatwaves

ii) Melting glaciers and water insecurity

iii) Erratic monsoon and flooding

iv) Droughts and desertification

v) Food insecurity due to industrial decline.

### Remedial measures to curb effects of global warming in Pakistan

i) climate smart agriculture

ii) Strengthening disaster management

iii) Transition to renewable energy

iv) Coastal protection measures

v) climate resilient water management.

(b)

### Describe the importance of balanced diet and enlist disorders associated to unbalanced diet

A balanced diet is one that provides all essential nutrients (Carbohydrates, proteins, fats, vitamins and fibers). Proper portion of each is needed for the body to perform tasks like:

## 1) Proper growth and development

(i) Energy supply to full body

(ii) Body repair and maintenance

(iii) Prevention of disease

(iv) Regulation of body processes

## Disorders due to deficiency

i) Carbohydrates deficiency  
weight loss, physical and mental performance loss, fatigue

ii) Protein deficiency  
muscle waste, growth halt, weak immunity

iii) Vitamin deficiency  
poor growth, weak eyes, blindness, anemia

iv) Fat deficiency  
dry skin, loss of vitamin A, D, E, K and hormonal imbalance

v) Fiber deficiency  
Piles, constipation, diabetes, digestive disorder

(c)

## Explain Strata and functions of atmosphere

The layers of atmosphere is divided into five main layers: Troposphere, Stratosphere, Mesosphere, Thermosphere and Biosphere.

i) Troposphere: 18km from surface to atmosphere is called troposphere. Temperature decreases with

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with altitude and contains clouds, rains etc. Oxygen,  $\text{CO}_2$  and water vapours are present here in majority.

ii) ~~Troposphere~~ Stratosphere: Present from 10-50 km in atmosphere. Temperature increase here as well. Ozone layer is present in this that protect the earth from the Sun rays.

iii) Mesosphere: Present from 50-85 km, temperature decrease sharply here upto  $-90^\circ$ . Meteoroid burning before reaching earth's surface.

iv) Thermosphere: Present from 85 to 600 km in the atmosphere. Temperature here is very high upto  $2000^\circ\text{C}$  due to closeness to solar radiation.

v) Exosphere: From 600<sup>km</sup> to above. Helium and hydrogen present here and connected with the outer space.

### Function of Atmosphere

- • It protects earth from harmful gases due to the presence of Ozone ( $\text{O}_3$ )
  - • Regulates temperature (human friendly)
  - • Provides essential gases for life like oxygen for respiration and carbon dioxide for the photosynthesis
  - • Support cycle<sup>that</sup> supports evaporation, precipitation, condensation)
  - • Shield from space debris meteoroid and asteroids.
- These functions of atmosphere help earth habitable for life.