

—(Part-II)—

—(SECTION-A)—

QUESTION NO. 2:-

(b)  
Phenomenon of Smog:-

Smog is a type of air pollution that occurs when smoke and other pollutants interact with atmospheric conditions to form a dense, often harmful haze.

$\text{SMOG} = \text{SMOKE} + \text{FOG}$

It primarily results from human activities.

Industrial Emissions

Vehicle Exhaust

Burning of fossil fuels

Smog forms when pollutants such as nitrogen oxides and sulfur dioxide, mix with fog, moisture and sunlight in the

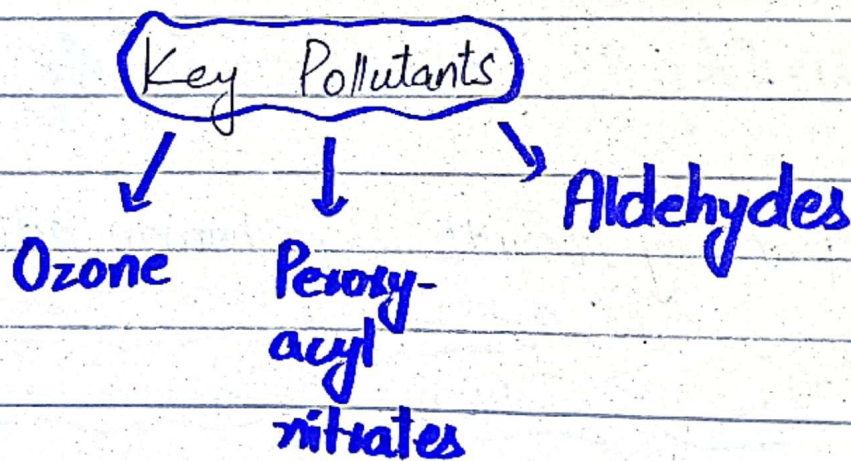


atmosphere, involving complex chemical reactions.

## Types of Smog

### ① Photochemical Smog

This type of smog results from the reaction of sunlight with pollutants like nitrogen oxides ( $\text{NO}_x$ ) and volatile organic compounds (VOCs.)



Example -

Los Angeles

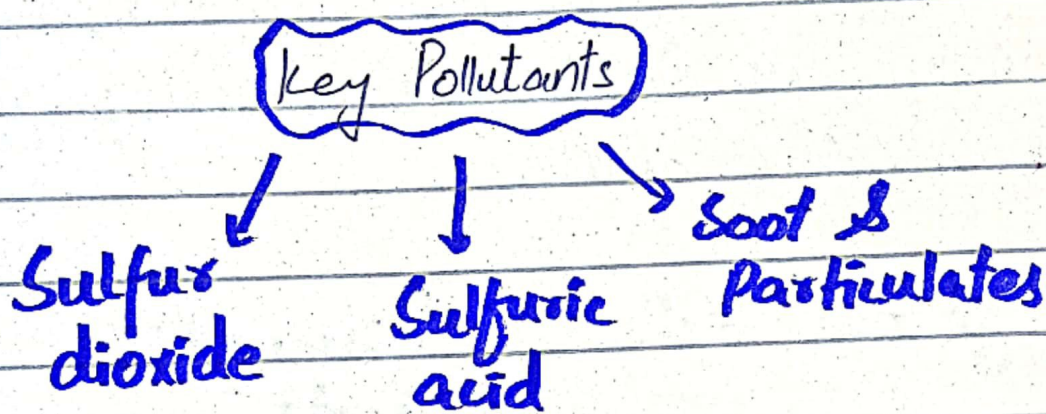
Mexico city

Beijing



## ② Sulfurous Smog

It is caused by the burning of fossil fuels like coal, releasing sulfur compounds and particulate matter.



Example:-

London (1952 Great Smog).

## Measures to control Smog:-

→ Reducing emissions by using cleaner energy sources.

→ Promoting public transportation and electric vehicles.

→ Raising public awareness about air pollution.



(a)

## Igneous & Metamorphic Rocks

Igneous rocks form directly from molten material (magma/lava), while metamorphic rocks form from the transformation of existing rocks due to intense heat, pressure, or chemical activity.

Igneous Rocks	Metamorphic Rocks
<b>Formation</b>	
→ Formed from the cooling and solidification of molten magma or lava.	→ Formed when existing rocks are subjected to heat, pressure, or chemical processes.
<b>Origin</b>	
→ Derived directly from magma or lava (primary rocks).	→ Result from transformation of pre-existing rocks (secondary rocks).



## Texture

- They can be coarse-grained (slow cooling) or fine-grained (fast cooling).
- They can be foliated (layered appearance) or non-foliated (no layers).

## Mineral Composition

- They are composed of minerals crystallized from molten material.
- They are crystallized under heat and pressure, forming new structures.

## Location

- They are found in volcanic areas or near magma chambers.
- They are found in areas with tectonic activity, such as mountain ranges.

## Appearances

- They appear glassy, shiny or porous (if extrusive); crystalline (if intrusive).
- They show banding, layering, or a more uniform crystalline structure.

## Heat & Pressure

- There is no significant heat or pressure involved in formation.
- Heat and pressure play a key role in their formation.



### [Examples]

→ Granite, Basalt,  
Pumice etc.

→ Marble (from limestone)  
slate (from shale)

(d)

## Short-sightedness:-

It is also called Myopia. It is a common vision condition where a person can see close objects clearly, but distant objects appear blurry.

### Causes of Myopia

→ The eyeball is too long, or the cornea is too curved.

→ This causes light rays to focus in front of retina rather than directly on it.

### Symptoms of Myopia



Blurry Vision

Eyestrain

Squinting to see clearly

## Risk Factors of Myopia

↓  
Genetics

↓  
Environmental  
Factors

## Treatment of Myopia

### ① Corrective Lenses:-

Glasses or contact lenses with the concave lenses to redirect light onto the retina.

### ② Refractive Surgery:-

Procedures like LASIK reshape the cornea for clearer vision.



# Far-Sightedness:-

It is also called Hyperopia. It is a vision condition where distant objects are seen more clearly than nearby objects. In severe cases, both near and distant vision can be blurry.

## Causes of Hyperopia

The eyeball is too short, or the cornea is too flat.

This causes light rays to focus behind the retina instead of directly on it.

## Symptoms of Hyperopia

Difficulty in focusing

Eye strain/discomfort

Blurred vision

Headaches



## Risk Factors of Hyperopia

Genetics

Age

## Treatment of Hyperopia

### ① Corrective Lenses

Glasses or contact lenses with convex lenses help focus light on the retina.

### ② Vision Therapy:-

It includes exercises to strengthen eye muscles and improve focusing ability.

(a)

## Risk Assessment:-

Risk Assessment is a critical component of Disaster Risk Management



as it forms the foundations for planning and decision-making.

### **i) Identify Hazards & Vulnerabilities :-**

Risk assessment helps identify potential hazards (e.g., floods and earthquakes etc) and the vulnerabilities of communities, infrastructure and ecosystems, allowing for targeted interventions.

### **ii) Prioritizing risks :-**

By evaluating different likelihood and impact of different risks, resources can be allocated efficiently to address most critical threats first, ensuring cost-effectiveness.

### **iii) Guiding Mitigation & Preparedness Efforts :-**

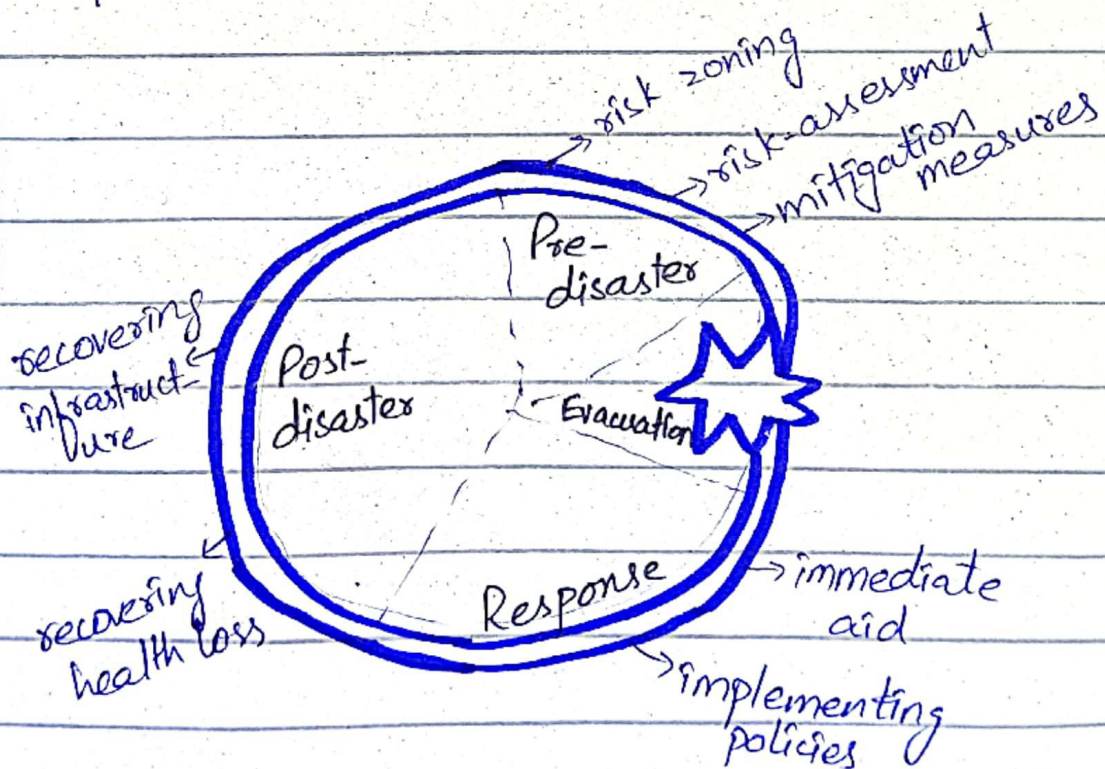
Understanding risk enables the development of appropriate strategies to mitigate



hazards, reduce vulnerabilities, and enhance preparedness through early warning systems and response plans.

## iv) Informing Policy & Planning :-

Accurate risk assessments provide a scientific basis for governments and organizations to create informed policies, urban planning, and zoning regulations to minimize disaster impacts.



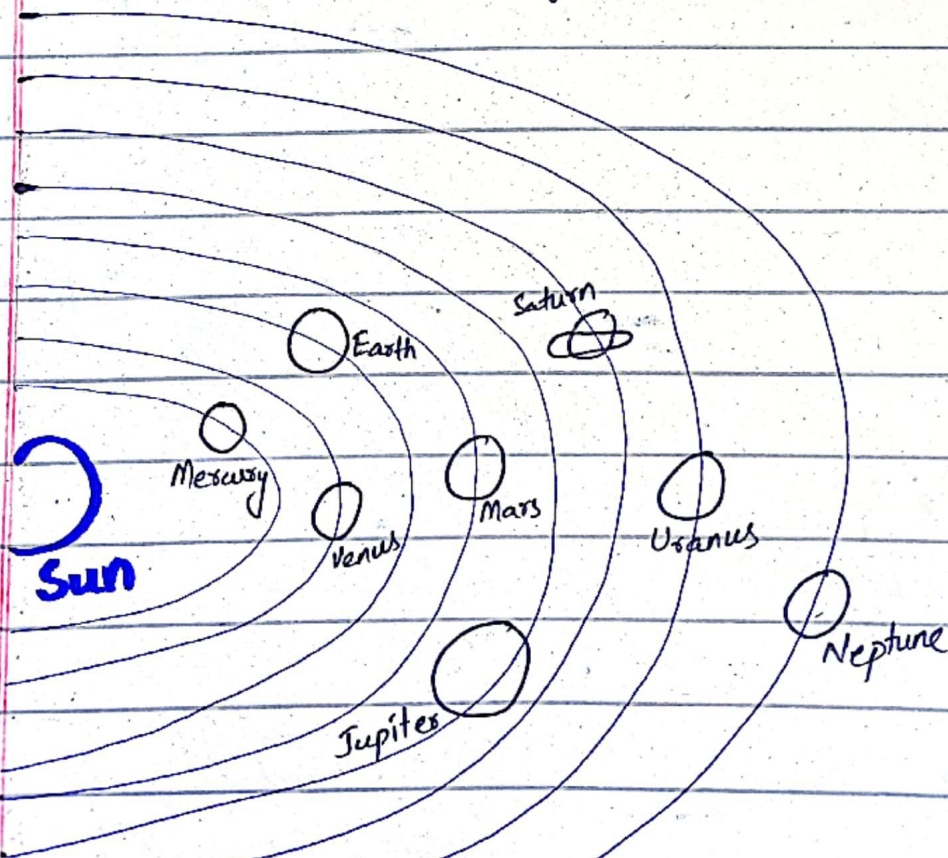


## Question No. 4:-

(a)

### Solar System

"The collection of <sup>sun and</sup> eight planets in their orbits with their moons and the bodies including asteroids, meteoroids and comets is called solar system."





## 1) The Sun =

Central star of solar system

about 99.8% of solar system's total mass.

A massive ball of hydrogen and helium undergoing nuclear fusion.

## 2) Planets =

### Terrestrial Planets

(Inner planets) → Mars  
↓ ↓ ↓  
Mercury Venus Earth

### Jovian Planets

(Outer Planets)  
↓ ↓ ↓ ↓  
Jupiter Saturn Uranus Neptune

## 3) Dwarf planets =

Pluto, Eris, Haumea, Makemake and Ceres are main dwarf planets.



#### 4) Other Objects:-

Asteroids

Comets

Meteoroids

Kuiper Belt

Oort cloud

(b)

#### Pituitary Gland:-

It is a small, pea-sized organ located at the base of brain, just below the hypothalamus. It is often referred to as the "master gland" because it produces hormones that control the function of other endocrine glands.

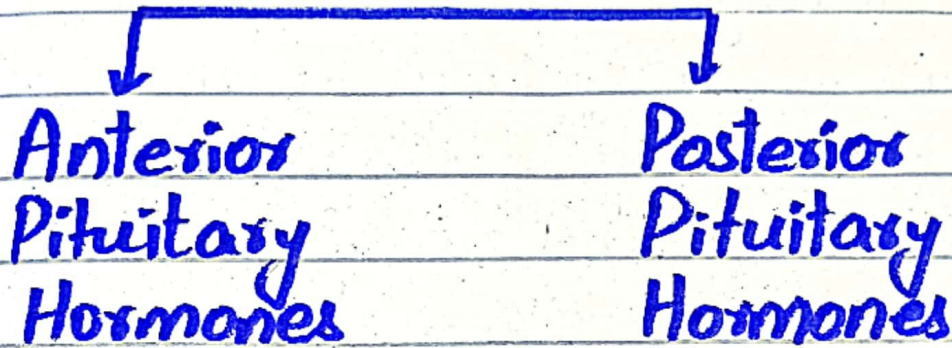
#### a) Hormonal Regulation:-

Pituitary gland produces and secretes several hormones that influence growth, metabolism, reproduction and



and other bodily functions.

These hormones are divided into two main categories based on their effects.



## b) Growth & Development:-

It controls the body's growth by releasing growth hormone. It helps ensure proper development during childhood and adolescence, bone development and muscle growth.

## c) Metabolism & Energy Regulation:-

The pituitary influences metabolism through the secretion of hormones like TSH (affecting thyroid) and ACTH (affecting cortisol production by the adrenal glands).



## d) Reproductive Function:-

The pituitary's FSH and LH hormones regulate ovulation and sperm production, directly influencing fertility. It also governs the production of sex hormones i.e., testosterone, estrogen.

(4)

RAM	ROM
<b>Abbreviation</b>	
Random Access Memory	Read Only Memory
<b>Volatility</b>	
→ It is volatile. (loses data when power is off).	→ Non-volatile (retains data without power)
<b>Speed</b>	
→ It is very fast, allows read and write	→ slower, mainly read-only



## Function

→ It is involved in temporary storage for active processes.

→ It is involved in permanent storage for essential instructions.

## Capacity

→ Largest capacity (GB to TB)

→ Smaller capacity (KB to MB)

## Modifiability

→ Data is read and written during operation

→ Data is generally not written.

## Motherboard

It is the main circuit board of a computer that connects and allows communications between all essential components, including CPU, RAM, storage devices etc.

## USB

It is a standard for connecting various peripherals and transferring data between them and computer.