General Science And Ability

Part II

(Section-A)

2 (a) Differentiate b/w Igneous rocks & Metamorphic rocks.

Aspect	Igneous Rock	Metamorphic Rock
Origin	Solidification of Magma/lava	Transformation of existing rocks
Formation Process	Cooling and Crystallization	Heat, pressure, and chemical fluids
Texture	Crystalline or glassy	Foliated or non-foliated
Example	Granite, basalte	Marble, slate

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In summary, igneous rocks originate from molten material, while metamorphic rocks are transformed by environmental changes to pre-existing rocks.

(b) Explain the phenomenon of smog and give its types.

Smog

Smog is a type of air pollution caused by the interaction of sunlight with pollutants in the atmosphere, such as vehicle emissions, industrial fumes and other chemical compounds. The term smog is derived from the words "smoke" and "fog", highlighting its hazy appearance and dense nature.

Types Of Smog

- Photo chemical smog
- Sulpurous smog

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(a) Photochemical Smog

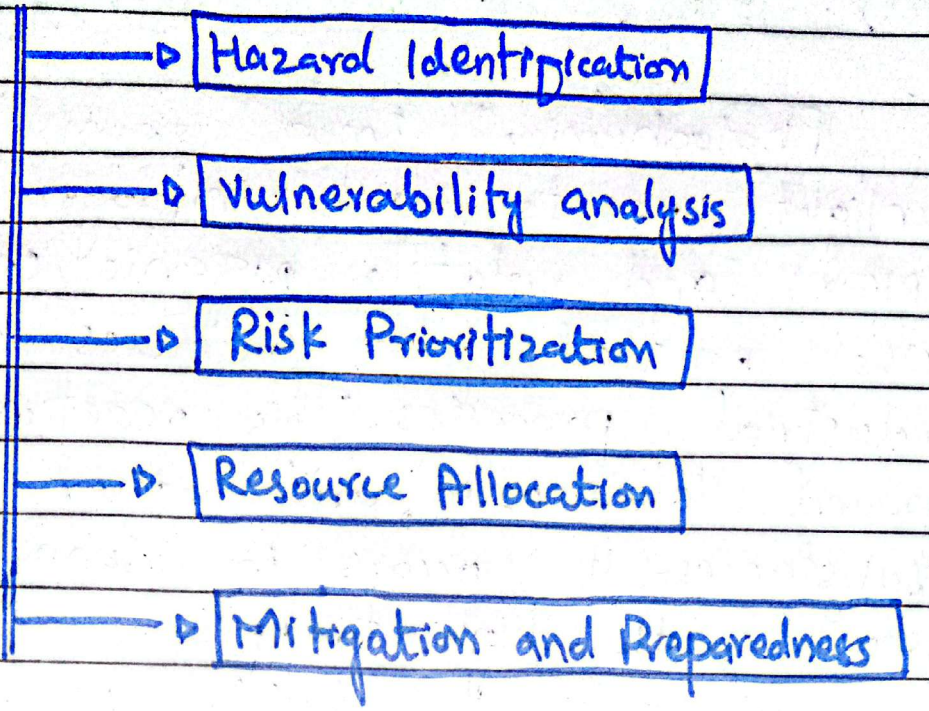
Photochemical smog forms when sunlight reacts with nitrogen oxide (NO_x) and volatile organic compounds (VOCs) emitted from vehicles and industrial processes. This reaction produces ground level ozon, and other harmful substances. It occurs in sunny, urban areas with high traffic.

(b) Sulfuric Smog

Sulfuric smog forms when sulfur dioxide (SO_2) from burning coal or fossil fuels combines with moisture in the air to creat a thick, fog-like mixture. It occures in cold, damp climates with high sulfur pollution.

(C) Give the importance of Risk assessment in DRM.

IMPORTANCE OF RISK ASSESSMENT IN DRM



Hazard Identification

Identifies potential natural or man-made hazards, helping in understanding their nature and impact.

Vulnerability Analysis

Assesses which populations, infrastructure, or systems are at most risk and why.

Risk Prioritization

Evaluates and ranks risks to focus on the most critical threats.

Resource Allocation

Ensures efficient use of resources by targeting high-risk areas.

Mitigation And Preparedness

Guides the development of strategies to reduce risks and improve disaster readiness.

(d). Explain short and far sightedness.

SHORT SIGHTEDNESS (Myopia)

Defination

A condition where nearby objects appear clear, but distant objects are blurry.

Cause:

The eyeball is too long, or the cornea is too curved, causing light to focus in front of the retina.

Correction:

Concave lenses are used in

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glasses or contact lenses to shift the focus onto the retina.

Farsightedness (Hypermetropia)

Defination:

A condition where distant objects appear clear, but nearby objects are blurry.

Cause:

The eyeball is too short, or the cornea is too flat, causing light to focus behind the retina.

Correction:

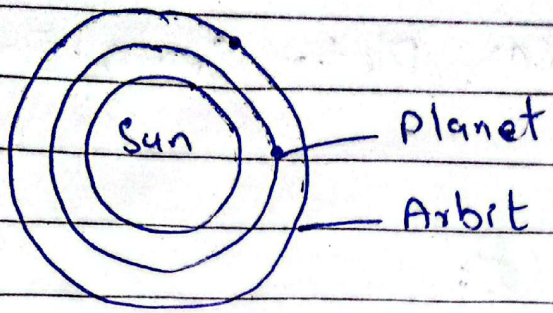
Convex lenses are used in glasses or contact lenses to focus light onto the retina.

Q.4 Write a note on Solar system.

SOLAR SYSTEM

The solar system consists of the Sun and all celestial object bound to it by gravity. It includes

eight planet, asteroids, comets, and meteorides.



The Sun:-

The centred star of the Solar System, providing heat and light, and accounting for 99.8% of its mass.

The Planets:-

- Inner Planets
  - Mercury
  - Venus
  - Earth
  - Mars
  - ↳ Rockey and closer to sun
- Outer Planet
  - Jupiter
  - Saturn
  - Neptune
  - Uranus
  - ↳ Larger and composed of gases.

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Dwarf Planet

It includes Pluto, Ceres, Eris, and others

Asteroid Belt:

Asteroid belt located between Mars and Jupiter, containing numerous rockey objects.

Comets:

Comets are icy bodies with tails that develop as they approach the Sun.

The Solar system formed about 4.6 billion years ago from a giant molecular cloud and continues to evolve.

(b) Give the importance of pituitary glands.

Importance Of Pituitary Glands.

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The pituitary gland, often called as "master gland" is a crucial part of the endocrine system as it regulates various bodily functions. It importance includes:

- Hormone Regulation
- Growth control
- Reproductive Functions
- Stress Response
- Water Balance

Hormone Regulation

Produces and releases hormones that control other glands like the thyroid, adrenal glands and reproductive organs.

Growth Control

Secretes growth hormone (GH) essential for physical growth and development.

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Reproductive Function

Regulates menstual cycles, ovulation, and sperm production through harmones like LH and FSH.

Stress Response

Releases ACTH, which stimulates the adrenal glands to produce cortisol, aiding in stress management.

Water Balance

Produces antidiuretic hormone (ADH), which regulates water retention in the kidneys.

The pituitary glands ensure overall hormonal balances and proper functioning of the body.

(c) Differentiate RAM and ROM; also define the term Nibble, USB and mother board.

Difference b/w RAM AND ROM

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Aspect	RAM (Random Access Memory)	ROM (Read-Only Memory)
Defination	A volatile memory used for temorary data storage while the computer is running.	A non-volatile memory used for permanent data storage.
Data Retention	Loses of data when the power is turned off.	Retains data even when the power is off.
Function	Stores data and infrastructures currently in use for faster processing	Stores firmware or essential programs for setup (e.g. BIOS)
Examples	DDR4, DDR5, memory modules	PROM, EPROM, EEPROM.

Deffination Of Nibble

A nibble is a unit of digital information that consists of 4 bits. It is half of a byte (which is 8 bits) and can represent one hexa-decimal digit.

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Deffination Of USB (Universal Serial Bus)

USB is a standard interface used for connecting devices like keyboards, mice, printers, and storage devices to a computer. It allows data transfer and power supply between the devices and the computer. USB connectors come in different types like ~~USSB~~ USB-A, USB-B, USB-C and micro-USB.

Deffination Of Mother Board

The mother board is the main printed circuit board (PCB) in a computer that connects and allows communication between various components such as the processor (CPU), memory (RAM), storage devices, and expansion cards. It houses the central components and has slots for connecting peripherals, providing power, and ensuring proper system functionality.

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Q.) COP-29 targets to limit temperature rise upto 1.5°C comment.

COP-29 And the 1.5°C TARGET

The COP-29 ~~&~~ aims to limit global temperature rise to 1.5°C above pre-industrial levels, a target agreed upon in the Paris Agreement. This goal is critical in preventing the worst impacts of climate change, such an extreme weather events, rising sea levels, and ecosystem ~~direction~~. disruption.

- Scientific Basis
- Global Emission Reduction
- Challenges
- Adaptation and Mitigation
- Long-term Impact

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Scientific Basis

The 1.5°C target is based on scientific research that highlights severe consequences of rising temperature upto 2°C, which would drastically affect ecosystems and human societies. Limiting warming to 1.5°c could significantly reduce the risk of extreme climate impact.

Global Emission Reductions

Achieving this goal requires dramatic and rapid reductions in global greenhouse gas emissions, with countries needing to transition to renewable energy sources, improve energy efficiency, and adopt sustainable practices in various sectors.

Challenges to COP-29 Target

While the 1.5°c target is ambitious, it faces significant challenges, including political disagreements, economic interests, and the pace at which technology and policy chages can be implemeted

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globally.

Adaption And Mitigation

Along with emission reductions, the goal also emphasizes adaptation strategies for vulnerable communities and mitigation efforts to manage the environmental impact.

Long-Term Impacts

Meeting this target could lead to a more sustainable future, protecting biodiversity, food security, and human health, but it requires immediate, coordinated global efforts and substantial investment in green technologies and policies.

In conclusion, while the 1.5°C target set by COP-29 is crucial for limiting climate change impacts, achieving it will demand urgent global cooperation, technological innovation, and significant political commitment.