

2025 / 20 / Jan

GSA PAPER

PAPER II :- (SECTION-A)

Q. 2

a) Differentiate between

Both are primary categories of rocks, distinct in geological processes

Igneous
Rocks

Metamorphic
Rocks

1) Formation:

cooling and solidification of Lava^o (magma) molten magma.

1) Formation:

Originates from the transformation of existing rocks like (igneous, sedimentary and other metamorphic) under heat and pressure.

2. Kinds:

- Extrusive igneous
Rocks (on earth
surface)
eg:- basalt, pumice

2. Contact Metamorphism
occurs during
mountain - building
process

Intrusive Igneous

Rocks :-

Formed from the cooled magma slowly beneath the surface.
(eg: granite, diorite)

Characteristics :-

Texture :

Can range from fine grained crystalline, granular.

• Composition: Like

~~granite or staurolite~~
during metamorphism rich in silicates.

• Appearance: - dense

- wavy texture

Regional metamorphism

occurs due to high-pressure and temperature ~~etc~~ during mountain building process.

• Texture :

Foliated or non

foliated

foliated (layered appearance)

• Composition: like

garnet or staurolite

during metamorphism.

• Appearance:

hard and crystalline

Examples:-	Examples:-
Basalt (extrusive)	Marble (from limestone)
Gneiss (intrusive)	Schist (from shale)

Q: 2 b. The Phenomenon of Smog

1. Introduction

2. Types of Smog

1. Classical Smog (London Smog)
2. Photochemical Smog (Los Angeles Smog)
3. Formulas
4. ~~temporal data and global trends~~

3. Conclusion

Introduction

SMOG: "The type of intense air pollution characterized by a mixture of smoke, fog and chemical pollutants"

Phenomenon:-

Smog in air pollution reduces visibility.

It was first used in 1900s to describe a mix of

'Smoke and fog'

Smoke usually comes under from burning of coal.

Fog:-

Under light wind (stable) and humid conditions, the cooled air in the ground sufficiently form vapours of water which condense into tiny water droplets is called fog and - It reduces visibility near the ground level.

Types of Smog:-

• Classical (London-type) Smog:

It is composed ~~sulphates~~ Sulphur dioxide and particulate matter from the burning of fossil fuels like Coal.

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This type of smog was prevalent in London during 19th and 20th century.

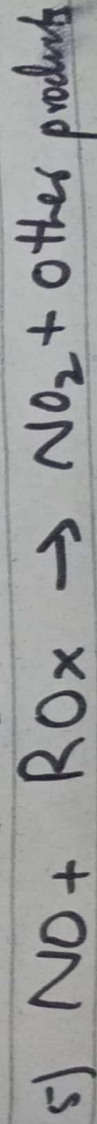
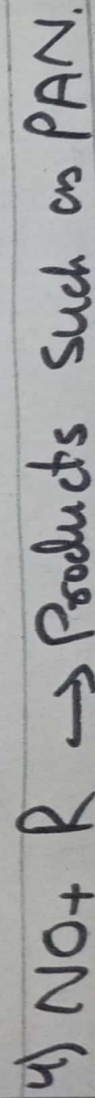
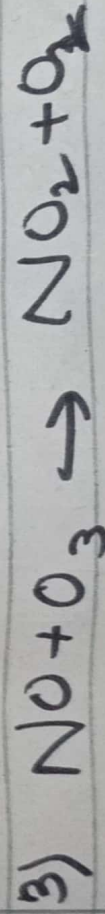
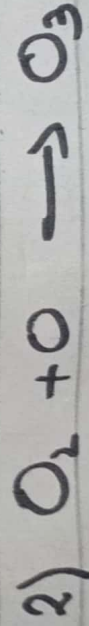
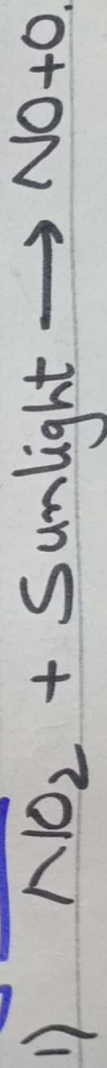
Photochemical (Los Angeles-type) smog

It develops from the reactions between sunlight and pollutants like (NO₂ and volatile organic compounds), which leads to the formation of

- Ozone
- Other secondary pollutants.

- It occurs in warm, sunny environment and common in urban areas with emissions.

Formula:-



Conclusion:

It is environmental issue. Global efforts to mitigate its impact. Societies with the help of science and by adopting sustainable change it can be reduce and improve public health, and environmental quality.

2(c) IMPORTANCE OF RISK ASSESSMENT IN

DRM:

DRM: Disaster Risk Management.
It is department which identify the risks by natural or human-induced hazards, and provide mitigating potential and evaluation.

For this purpose United Nations have made established department named

UNISDR:-

United Nations Office for Disaster Risk Reduction.

1. Identification of Disaster / Hazards:
It helps to identify the disasters such as floods, earthquake, droughts and pandemics.
2. Informs Decision Making:-
provides Scientific Research for policy making, effective strategy and provides resources efficiently to mitigate potential disasters.
3. Prioritization of Risks:
Help in identifying and factors. Ensuring that efforts directed towards the areas with the highest potential impact.
4. Resources optimization:
Resources are utilized for the where they are needed, reducing the redundancy and enhancing the overall efficiency of DRM.

2(d):

Explanation of Short-Sightedness (Myopia) and Far-Sightedness (Hyperopia)

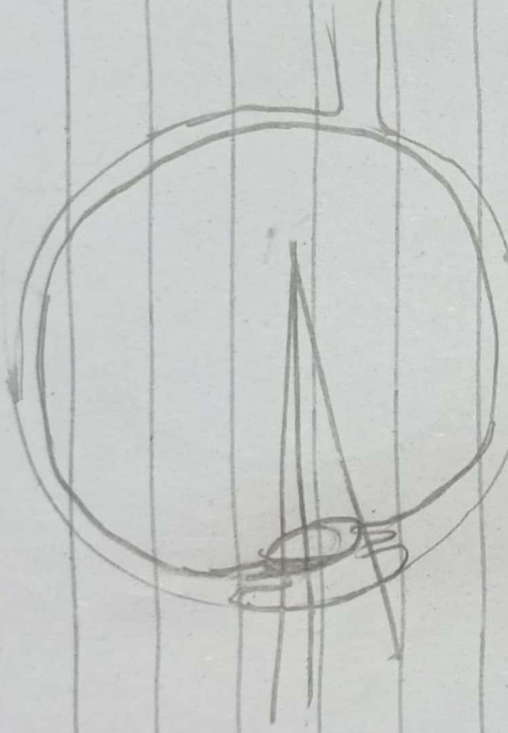
SHORT-SIGHTEDNESS (MYOPIA):

^{ca} The condition of vision where close objects are seen clearly, but far objects appear blurred.

- The eye ball is too long and cornea is too curved. It causes light to focus ~~at~~ directly instead of ~~retina~~ on cornea instead of retina. So this condition is called Myopia.

- Correction:

With the help of concave lenses the focus light properly on retina.



Near - Sighted

Light focus in front of retina

2. FAR-SIGHTED: (Hyperopia)

It is vision where distant object are seen clear than close one.

Because when the eye ball is too short, and the cornea has small curvature,

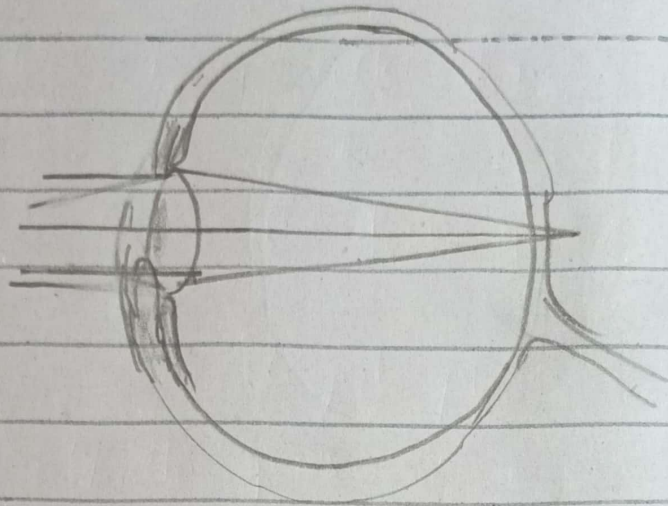
so light focus on behind the retina.

Correction:

It can be corrected with convex lenses and allowing

the clear vision.

(6)



Far-sightedness
behind of retina.

Q: 4

a) Note on

SOLAR SYSTEM

Also called Planetary System.

The solar system is ~~the~~^a collection of planets, ~~stars~~ moons, asteroids and other objects that orbit the sun, with the help of gravitational forces.

1) Sun:

A star at the center.

It provides light and energy, and

it sustains life on Earth.

It is composed of fusion of hydrogen and helium gases in its core.

2) Planets:

There are eight planets in our solar system.

Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune

1) Mercury:

The smallest planet in the solar system, named after Roman God, made up of rock.

2) Venus: The hottest and fastest moving planet, made up of rock, - Roman God name.

3) Earth:

The largest terrestrial planet, made up of rock and metal.

Earth is the only known planet to support life.

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Earth:

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Earth is the only known planet to support life.

4) Mars:

Made up of rock and metal

Larger in size than Earth, near the Earth
and named after Roman god of war.

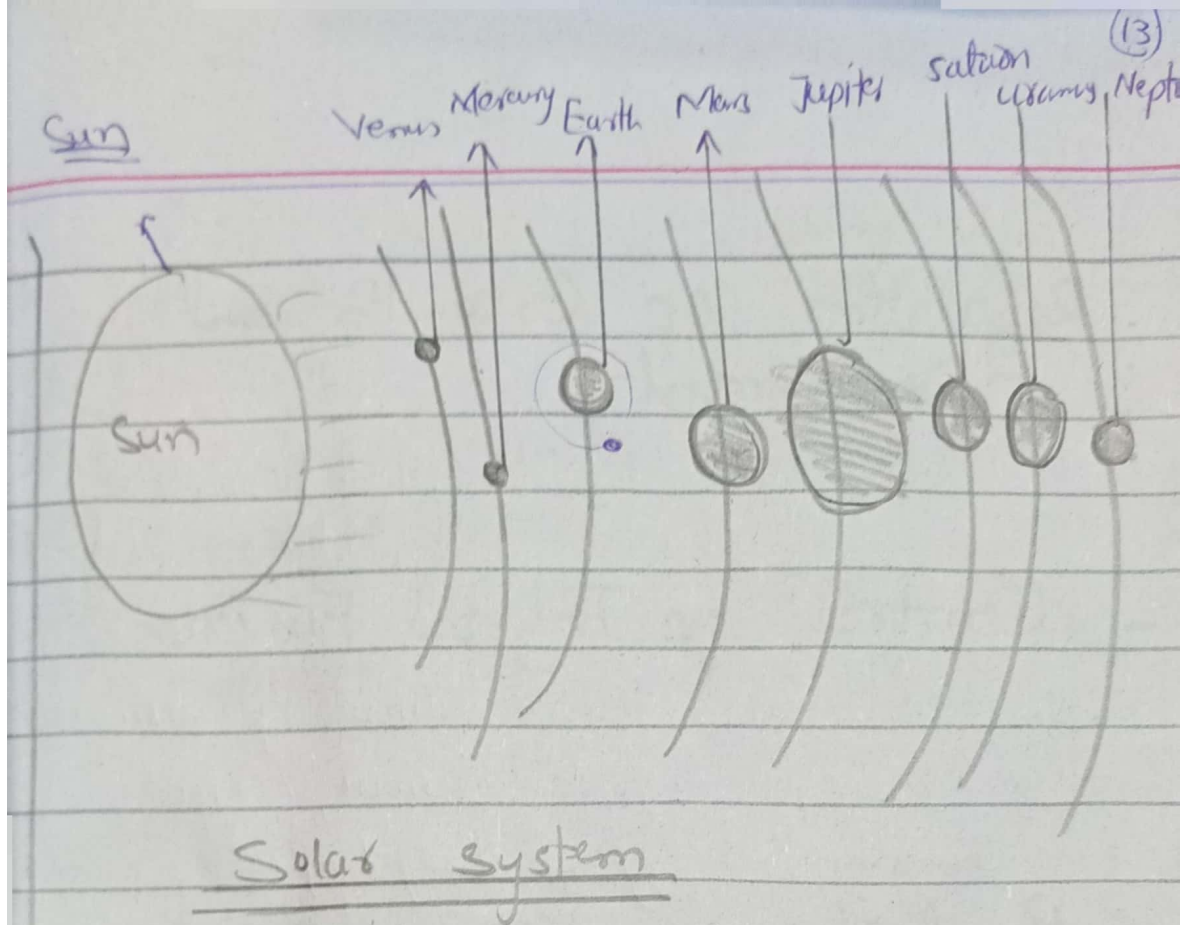
5) Jupiter: The largest planet in Solar System
made up of gases, and ice and the
King of the Roman God.

6) Saturn: Made up of gases and ice,
Roman God of agriculture.

7) Uranus: Made up of gases and ice,
and named after an ancient Greek
king of the gods.

8) Neptune:

Made up of gases and ice.



Q:4.6

Importance Of Pituitary gland:

Pituitary gland:

The Pituitary gland is a pea-sized endocrine gland located at the base of the brain, just below the hypothalamus.

It is also known as the master gland of the body. It controls all the glands of the endocrine system, such as thyroid, adrenal glands and reproductive organs (ovaries).

1- Importance

- Regulation of Growth and Development

It produces (GH) growth hormone for normal physical growth, in bones, metabolism

- Control of Thyroid Function

controls (TSH) thyroid stimulating hormone to produce thyroid hormone, control mechanism, energy and body temperature

- Regulation of Reproductive Process

It produces FSH (Follicle Stimulating hormone) which control menstrual cycle in women and sperm production in men. These are essential for fertility.

- Control of Stress Response

It control ~~secretion~~ secretion (ACTH), Adrenocorticotropic hormone (ACTH), It manages stress, regulate blood sugar, and reduce inflammation.

- Milk Production and Lactation

It produces prolactin, which is responsible for milk production in female after child birth.

Prolactin levels increase during pregnancy to prepare the breast for lactation

- water Balance Regulation

The posterior part of the pituitary releases Vasopressin (Antidiuretic Hormone, ADH) water balance by kidney.

- Lab^{or}~~or~~ and Bonding.

The posterior part also secretes Oxytocin, oxytoch creates bonding between Mother and child, and it influences social and emotional behaviors.

4c Difference between RAM ROM

- (Random Access Memory)	- (Read - only - Memory)
- It stores data temporarily, while computer is on.	- It is non-volatile memory that stores system permanently.
- Data is lost.	- Data is not lost.

Define:-

- USB:- Universal Serial Bus

- It is data storing device

- It connects to ^{other} device.

It transfers data from ~~computer~~ ^{device} into the device, it is also used for charging purpose.

- It is used to connect keyboard, mice external device devices and smart phone to the computer.

- Nibble:

A nibble is a unit of digital information equal to 4 bits, half of a byte.

- Mother board:

It is the ~~input~~ ^{output} device.

It supports CPU, (RAM) and other storage devices and other essential components and facilitates communication between them.

4d) COP-29 Target to limit temperature Rise to 1.5°C:

The COP-29 Conference, part of the United Nations Framework Convention on climate change (UNFCCC), It is aiming to limit the global temperature

TARGETS:-

- to mitigate worst effects of climate change, such as extreme weather events, sea-level rise, and biodiversity loss.
- To Achieve the goal of reduction in green house effects, increasing renewable energy and effort for achieving these adaptations.
- To implement more aggressive policies to limit the temperature rise to 1.5°C.