

Part II

Section A

Question # 02:

a.

Igneous Rocks

Metamorphic rocks

Definition These are the types of rocks that form due to solidification of lava and magma.

While these rocks are formed from the transformation of an existing rock type into a new rock type.

Hardness Comparatively less hard and have no layers

Comparatively hard. may or may not have layers

Occurrence Nearly 95% of the total rocks

Found in a very small percentage.

Mineral Content Made up of two or more minerals.

Usually made up of only one mineral.

Fossils Have no fossils

Have fossils rarely.

Types Two:

Two:

Intrusive IR

Foliated metamorphic rocks.

Extrusive IR

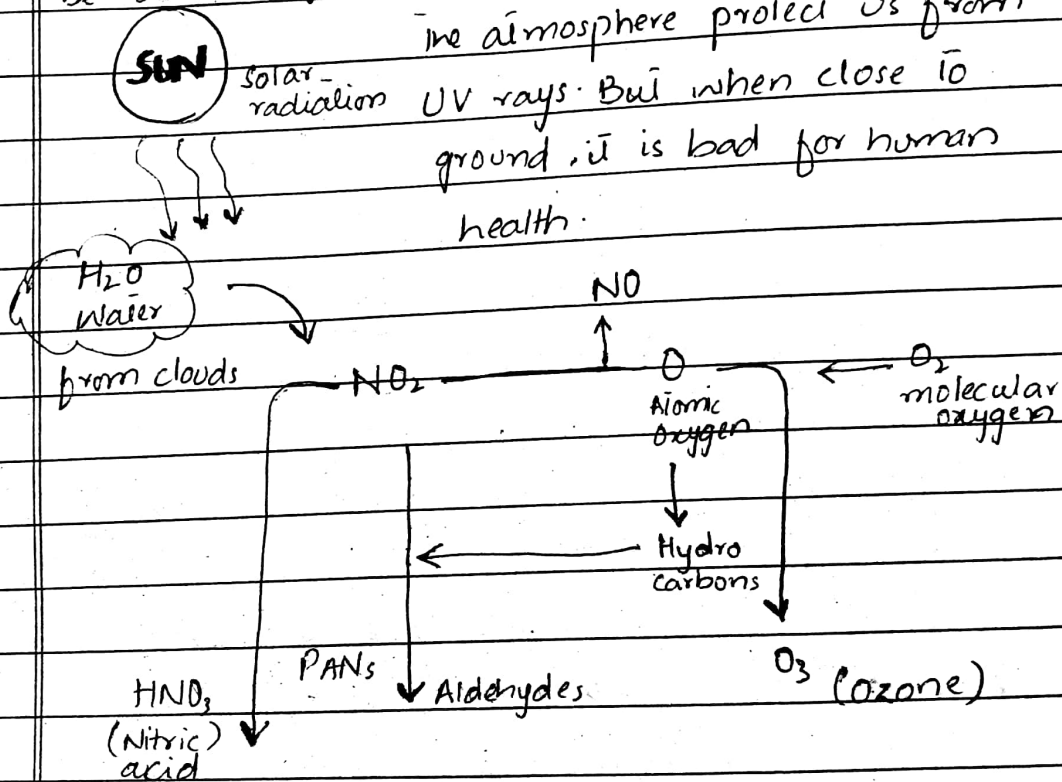
Non-foliated metamorphic rocks.

b.

Phenomenon of Smog:-

Smog is a type of air pollution caused by the combination of smoke, fog, chemical fumes, reducing visibility and posing health issues.

Today, most of the smog we see is photochemical smog. This smog is produced when sunlight reacts with nitrogen oxides and at least one volatile organic compounds (VOCs) in the atmosphere. Nitrogen oxides come from car exhaust, coal, power plants, and factory emissions. VOCs are released from gasoline, paints, and many cleaning solvents. When sunlight hits these chemicals, they form air-borne particles and ground level ozone - or smog (a brown haze above cities). Ozone can be both harmful and helpful. The ozone layer high in the atmosphere protect us from



Photochemical Smog

Types of Smog:-

Smog (on the basis of formation)

Photochemical Smog
(also known as Los Angeles smog)

Sulfurous Smog
(also known as London smog)

Sulfurous smog is the result of high concentration of sulfur oxide in the atmosphere. This is usually caused by the burning of fossil fuels and coals.

c.

Risk assessment in DRM

Risk assessment is vital part of disaster risk management (DRM) because it helps to identify and prioritize risks, and guides the development of strategies to reduce them.

Importance:-

Helps in identifying the risks: Risk assessments help identify the likelihood and magnitude of potential losses as well as the causes and impact of those losses.

Guides strategies: These help in guiding the development of strategies to reduce risk such as retrofitting buildings, developing land-use guidelines, and training emergency responders.

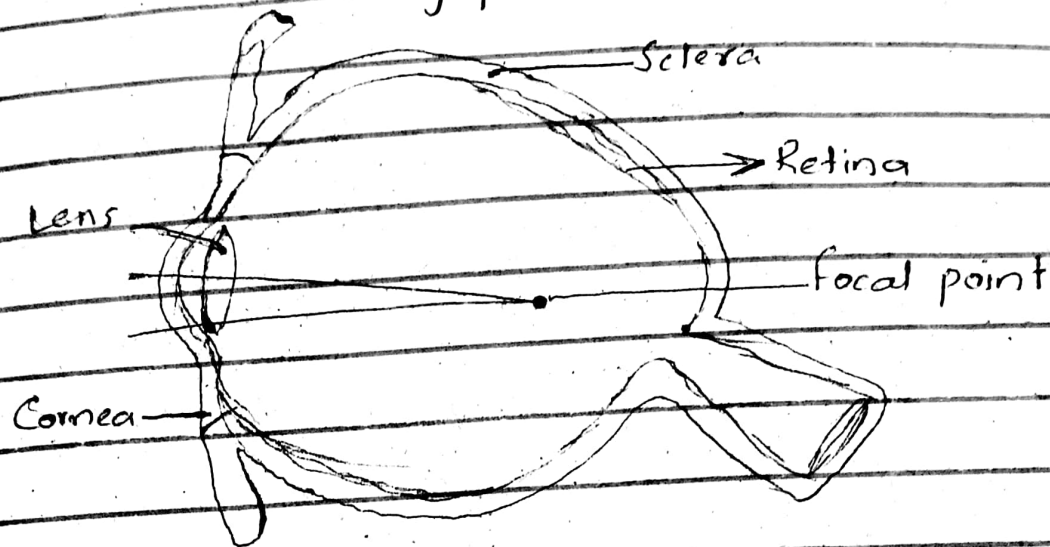
Helps allocate resources: These assessments help administrators allocate resources efficiently to areas that are most vulnerable or at highest risk.

Helps prevent new risks: These assessments are helpful in preventing new risks by strengthening the resilience and reducing disaster losses.

d.

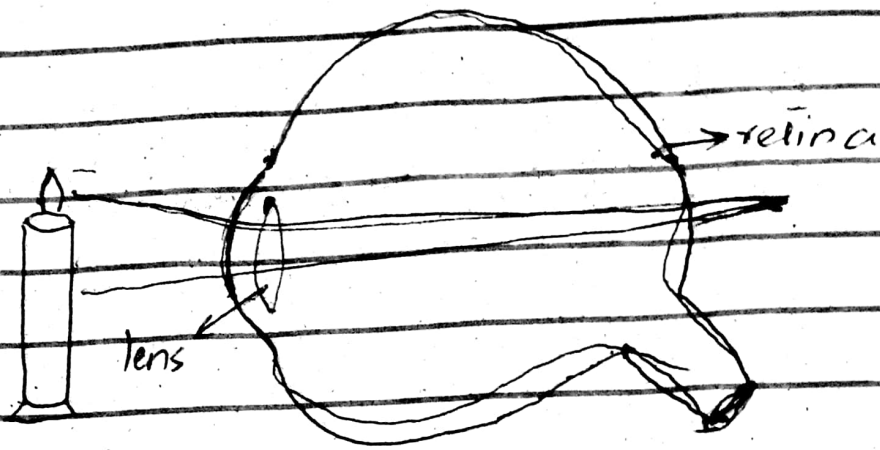
Short Sightedness:- It usually occurs when the eyes grow slightly too long. This means that light doesn't focus on light sensitive tissue called retina at the back of eye properly. Instead, the light rays focus just in front of retina, resulting in distant objects appearing blurred.

Short-sightedness is also known as myopia.



far sightedness:- It occurs when the eyes grow slightly too short and it becomes difficult seeing objects that are close up (like words in book). The shape of eyeball in this condition is too short (front to back). The light rays in this condition focus too far past the retina, resulting in near objects appearing blurred.

Far sightedness is also known as hyperopia.



Question # 04:

Solar System

Our solar system consists of eight planets, five dwarf planets, and various smaller bodies like moons, asteroids, and comets.

Formation:-

The solar system formed approximately 4.6 billion years ago from a giant cloud of gas and dust called solar nebula.

Key Components:-

Sun: The center of solar system; a massive ball of hot, glowing gas.

Planets: Eight planets including Mercury, Mars, Venus, Earth, Jupiter, Uranus, Neptune, Saturn.

Dwarf planets: Five recognized dwarf planets are Pluto, Eris, Ceres, Haumea, Makemake.

Other Components:-

Moons: natural satellites of earth and many other planets and dwarf planets.

Asteroids: small, rocky objects that orbit the sun.

Comets: icy bodies that release gas and dust as they approach the sun

b. Importance of pituitary gland.

~~pituitary gland is small, pea~~ The pituitary gland is small pea-sized endocrine gland located at the base of the brain. Despite its small size, it plays a vital role in regulating various bodily functions.

→ Hormone regulation: It acts as a master gland that regulates the production of hormones in other endocrine glands such as thyroid, adrenal glands and gonads (ovaries, testes)

→ Growth and development: During childhood and adolescence it produces growth hormone which regulates the development of human body.

→ Reproductive functions: It regulates reproductive functions such as puberty, menstruation and fertility, by controlling the production of gonadotropins (FSH and LH)

→ Metabolism and Energy: By controlling the production of thyroid hormones it helps regulate metabolism and energy levels.

→

c.

RAM

→ Random access memory

→ Volatile memory
Loses data when power is turned off.

→ Temporary storage
Holds data while computer is running.

→ Fast access
Allows quick access and modification of data.

ROM

→ Read only memory.

→ non-volatile memory
retains data even when power is turned off.

→ Permanent storage
holds firmware or software that doesn't need to be changed.

→ Slow access
Data can only be read not modified.

Nibble:- A nibble is a unit of digital information that represents 4 binary digits (bits). It is half of a byte (8 bits). These are often used to represent hexadecimal numbers.

USB:- It is a standard interface for connecting devices to a computer. It allows for the transfer of data, power, and control signals between devices.

Motherboard:- This is the main circuit board of a computer that connects and supports all the hardware components. It contains sockets for the CPU, memory and other components as well as circuitry for power delivery, storage input/output operations.

d.

The goal to limit the average global temperature rise to 1.5°C above pre-industrial levels is ambitious and necessary to mitigate the worst impacts of climate change. Achieving this goal ~~will~~ requires significant reduction in greenhouse gas emissions as well as concerted efforts from countries around the world to transition to renewable energy sources, increase energy efficiency, and protect natural carbon sinks like forests.

The Paris Agreement framework for countries to submit their Nationally Determined Contributions (NDCs) is a crucial step towards achieving this goal.

$$x = \frac{20 - 21}{7}$$

Section B

Question # 7.

a.

Let the number be

$$x, x+1, x+2, x+3, x+4, x+5, x+6$$

As per given conditions:

$$\text{Sum of 7 numbers} = 20$$

7

$$x + x+1 + x+2 + x+3 + x+4 + x+5 + x+6 = 20$$

7

$$7x + 21 = 20$$

7

$$7(x+3) = 20$$

7

$$x+3 = 20$$

$$x = 20 - 3$$

$$\boxed{x = 17}$$

Putting values in above eq.

$$17 + (17+1) + (17+2) + (17+3) + (17+4) +$$

$$= (17+5) + (17+6)$$

7

$$= \frac{140}{7}$$

7

$$= 20$$

Ans.

So the largest no.
is 23.

b.

A told B

C = nephew of A's father

D czn of A

A czn of C but not brother of D

Since both D and C are A's cousin

~~or~~ then C and D are cousins of

each other as well.

c. Missing sequence.

(i) 4, 18, 50, 100, 180, 294, 448

(ii) 1, 2, 10, 37, 101, 226

(iv) 13, 24, 46, 90, 178, 384

(v) 4, 16, 144, 400, 900, 1764

(iii) 11, 17, 39, 85, 189

Question # 08.

a.

Distance from Ali's feet to tree = 10m

" " " eyes " ground = 1.5m

" " " " " top of tree = 15m

$$\begin{aligned} \text{Height of tree} &= 15 - 1.5 \\ &= 13.5 \text{ m} \end{aligned}$$

$$\text{Height of tree} \div 10$$

=

Question # 8.

a. Let, the height of tree be "h"

Using Pythagorean theorem

$$h^2 = p^2 + b^2$$

$$h^2 = p^2 + 10^2$$

Distance from Ali's feet to tree = b = 10m

" " " eyes " top of tree = h = 15m

height of tree is "p"

$$15^2 = p^2 + 10^2$$

$$225 = p^2 + 100$$

$$225 - 100 = p^2$$

$$125 = p^2$$

$$\sqrt{125} = \sqrt{p^2}$$

$$\boxed{11.18 = p}$$

adding 1.5m in p to get total height of tree

$$h = 11.18 + 1.5 \text{ m}$$

$$h = 12.68 \text{ m}$$

b.

CONSCIENTIOUS

LUDICROUS

PRESSURE

COMPLAIN

PRESSURE

c. Hexagon : 6 lines of symmetry.
Lines of symmetry pass through opposite vertices or midpoints of opposite sides.

Octagon : 8 lines of symmetry.
pass through opposite vertices

Circle : has infinite lines of symmetry.

d. Volume of pyramid

$$V = \frac{1}{3} \text{ Base Area} \times \text{Height}$$

Given,

length of base = 7cm

width of base = 5cm

height of pyramid = 10cm

Base Area -

$$L \times W$$

$$7 \times 5$$

$$35 \text{ cm}^2$$

$$V = \frac{1}{3} \times 35 \text{ cm}^2 \times 10 \text{ cm}$$
$$= \frac{350}{3}$$
$$= 116.67 \text{ cm}^3.$$

Volume of pyramid is 116.67 cm^3 .