

Final Mock: GSA

PART-II

SECTION-A

QUESTION-2

(a)

ROCKS

IGNEOUS

- Formed from the cooling and solidifying of magma or lava are called igneous rocks.

- They can be coarsely or finely grind rocks.

- They can be formed by cooling of lava on the surface of earth or cooling of magma beneath the earth surface.

Examples:

Include Basphalt, granite etc.

METAMORPHIC

- Metamorphic rocks are formed when heat or pressure is applied to existing rocks and they are transformed.

- They can be foliated or non-foliated rocks.

- They are formed from pre-existing rocks when pressure or heat is applied beneath the earth surface.

Examples:

Include marble, slate etc.

(b)

temperatures to produce a hazy, yellowish fog that surrounds the atmosphere.

Phenomenon:-

It is a relatively new concept that started in the 1900s England in the industrial age. When smoke from man-made activities like combustion of fossil fuels, ignition of engines etc. combines with the fog in the winters, it forms a cloudy haze that is detrimental for health and is called smog.

Implications on Health:-

- It causes environmental pollution.
- It causes serious health issues.
- Respiratory issues like shortness of breath, asthma are aggravated because of smog.
- It also causes irritation of eyes and nose.
- It also causes fatigue and headaches.

Situation in Pakistan:-

In the recent years, due to increased combustion of fossil fuels, automobile use and burning of crops, smog has emerged as a serious issue during the months of September and October in metropolitan cities like Karachi, Lahore etc. each year.

→ In 2024, Smog levels reached an unprecedented high level in Lahore, Multan and Karachi and the government announced a health emergency in hospitals.

According to University of Chicago,

"The life expectancy in Lahore has decreased up to 7 years."

→ This is causing serious environmental and health concerns and require immediate attention and policy changes to tackle the issue in the long run.

TYPES OF SMOG

There are two major types of smog:-

- 1) Industrial smog
- 2) Photochemical smog

INDUSTRIAL SMOG:

It is also known as sulphurous or black smog.

→ It is caused by burning of sulphurous fossil fuels like coal.

→ Typically occurs in humid environments.

→ Mostly occurs in England but now more common in other areas.

→ It contains many tiny aerosol particles that make it appear gray.

→ Caused extreme havoc in 19th century England.

PHOTOCHEMICAL SMOG:

→ It is caused by vehicle exhaust due to increased automobile use.

→ Mostly occurs in hot, dry climates.

→ More common in Los Angeles and Mexico.

→ It contains many volatile organic compounds.

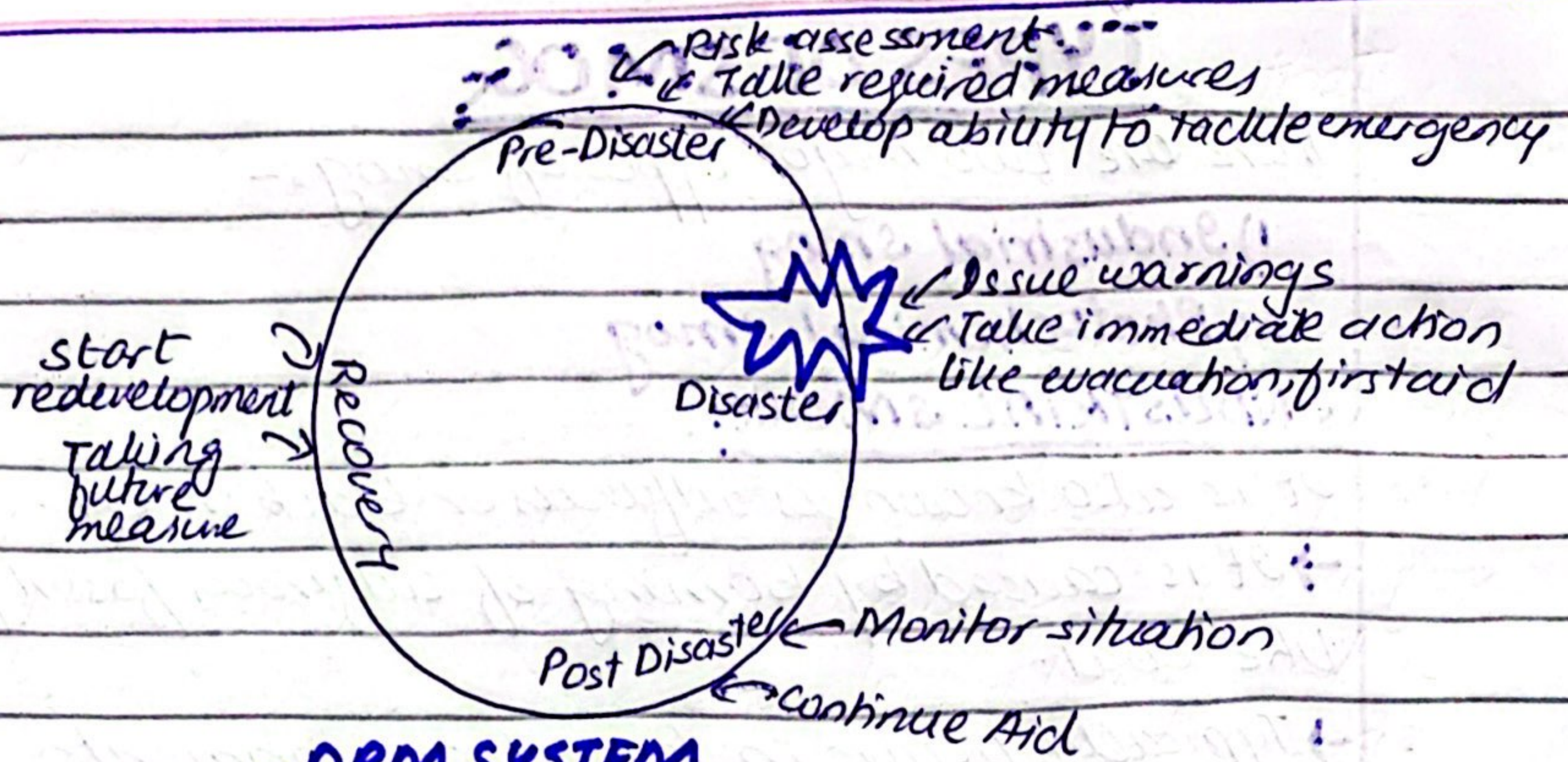
(C)

RISK ASSESSMENT

DISASTER RISK MANAGEMENT SYSTEM:-

It is a system to assess the risk of perceived threats, taking precautionary measures, issue warnings and take immediate action and redevelopment after the disaster has been tackled.

→ Risk assessment is the first and most crucial step in the DRM system.



- DRM SYSTEM

IMPORTANCE OF RISK ASSESSMENT:-

- Risk assessment is the first and most crucial step in the process of DRM.
- It includes identifying areas where there is a perceived threat e.g. San Andreas fault line (for earthquakes), Los Angeles (for wild fires).
- By identifying the areas, adequate measures are taken before hand so that the effects of disaster are minimal.
- If identifying is not possible, infrastructure is improved to tackle any unforeseen situation.
- Efficient risk assessment can help reduce the effects of a disaster like pre-planned evacuation and building the community according to the standards to withstand a disaster.

(d)

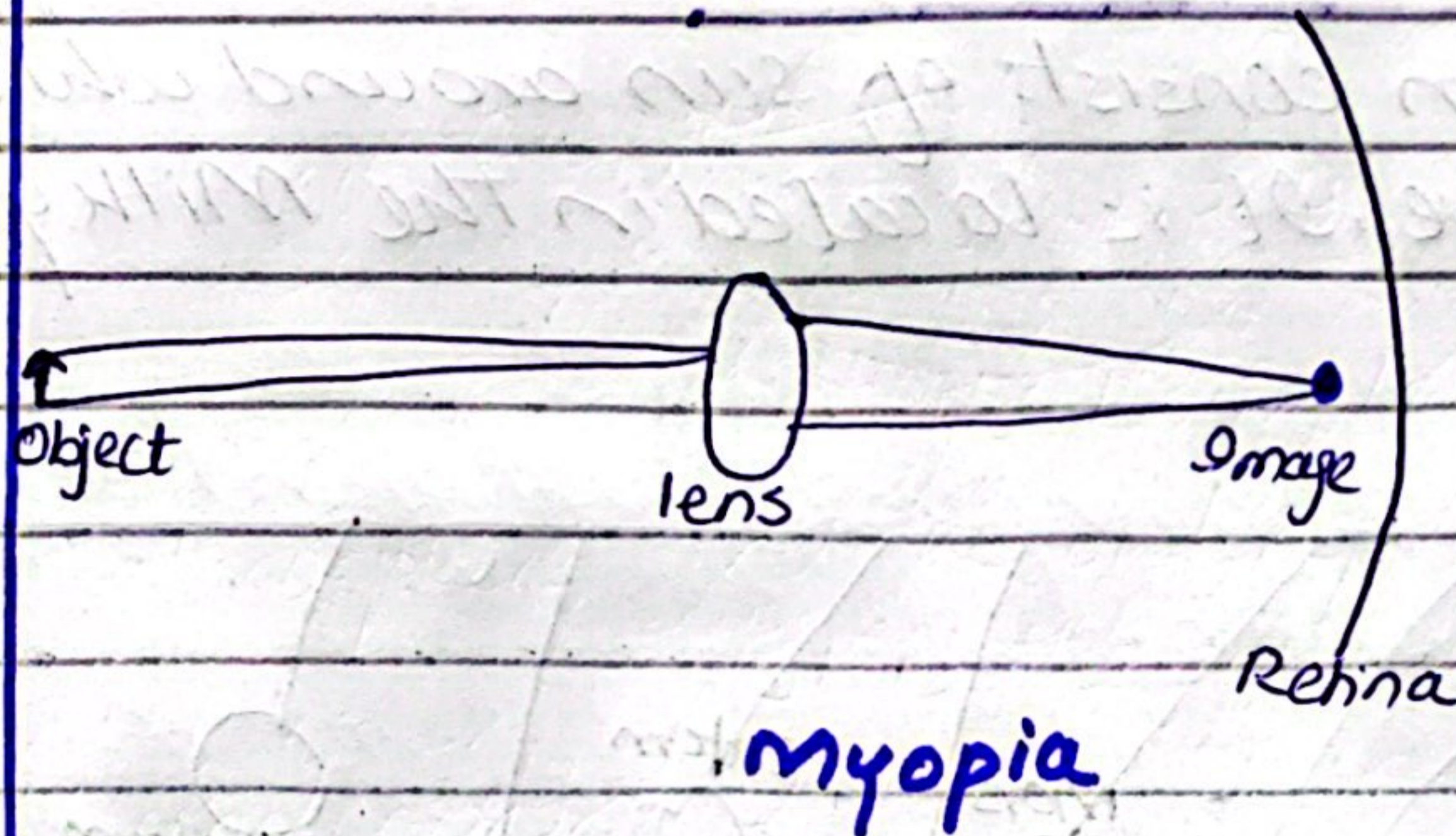
SHORT SIGHTEDNESS

Shortsightedness or Myopia is a disorder of the eye which is caused due to either elongated eye ball or lens too curved that results in difficulty to see distant objects clearly.

EXPLANATION:

→ It is caused when the image is formed in front of the retina not on the retina that results in blurry vision.

→ It is corrected by concave lens.



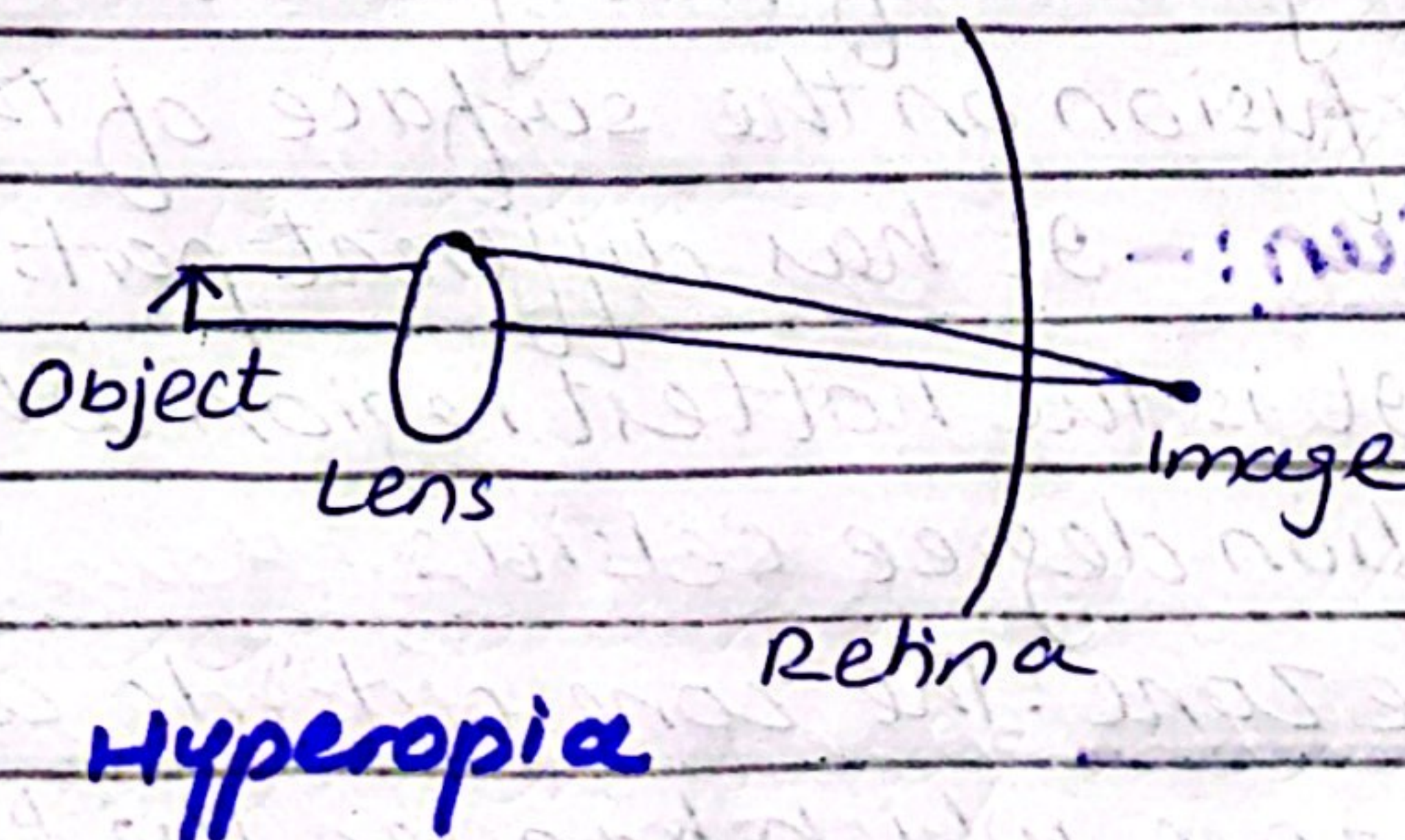
FAR SIGHTEDNESS

Farsightedness or hyperopia is the disorder of the eye in which nearby objects are not viewed clearly because the image is formed at the back of retina.

EXPLANATION:

→ It is caused when the eyeball is too short or cornea is too flat that results in image forming at the back of retina.

→ It is corrected by convex lens.

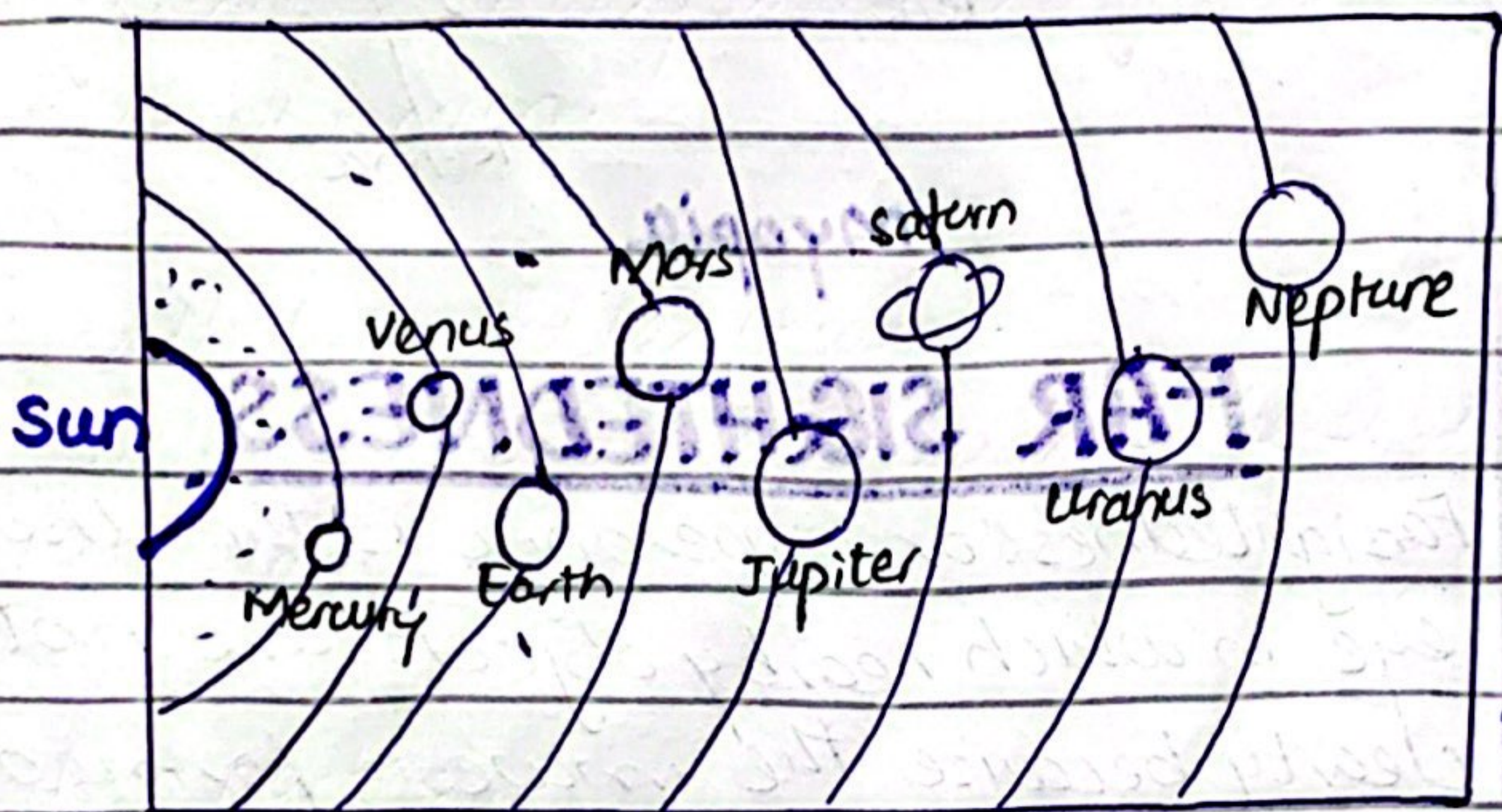


QUESTION-4

(a)

SOLAR SYSTEM

Our solar system consists of sun around which 8 planets revolve. It is located in the Milky Way galaxy.



Solar System

IMPORTANT COMPONENTS

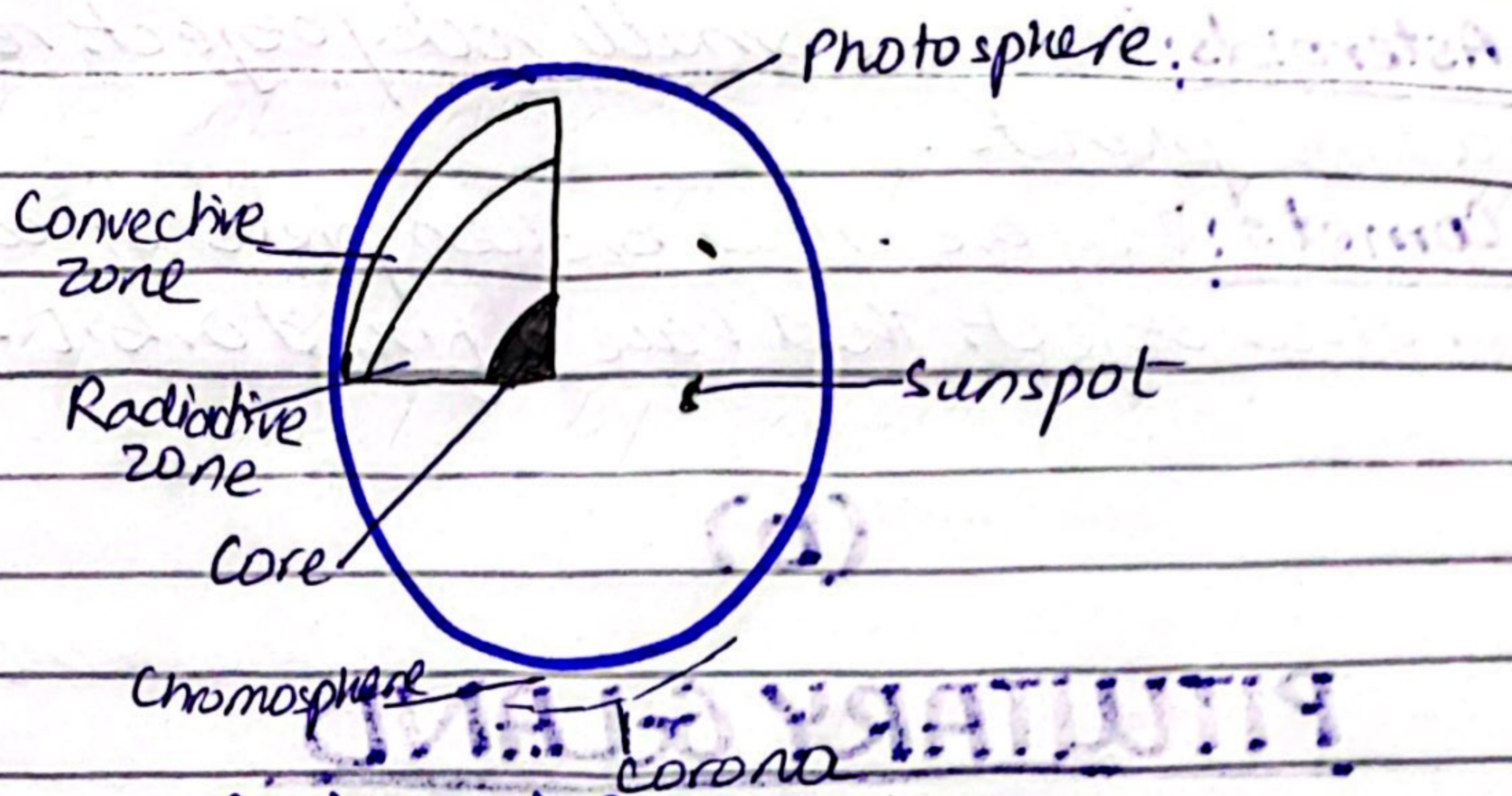
SUN:- Sun is the centre of our solar system which provides light and energy to all the planets around it. The outer atmosphere of the sun is called **corona**. It is a huge ball of hot gases which are produced by nuclear fusion on the surface of the sun.

Parts of Sun:- It has different parts which include

→ **Core:** It is the hottest region which has temperature of 15 million degree celsius

→ **Radiative zone:** The zone outside core is called radiative zone which transfers the heat from core to the outer zone.

→ **Convective zone:** The outer zone is called convective zone that transfers heat energy through convection to the atmosphere.



Surface of Sun

Photosphere: It is the boundary between the sun's atmosphere and the outerspace.

Chromosphere: It is the zone between photosphere and corona.

Corona: The outermost zone of sun's atmosphere is called corona. Its temperature is 5000°C .

PLANETS: - Planets are the bodies that are orbiting around the sun. The solar system has eight planets.

Types of Planets: There are two types of planets.

Terrestrial

→ These include mercury, venus, earth and mars.

→ They have hard rocky surfaces.

→ They have less moons.

Jovian

→ These include Jupiter, Saturn, Uranus & Neptune.

→ They have gaseous surfaces.

→ They have many moons.

DWARF PLANETS: -

Some planets have moved out of the orbit of the sun and are freely moving.

→ Pluto is now a dwarf planet.

Asteroids & Comets: - There are some other rocky bodies revolving around the sun.

Asteroids: These are small rocky objects revolving around planets.

Comets: They are either broken pieces of asteroids or other objects that have a fixed orbit.

(b)

PITUITARY GLAND

Pituitary gland is a very small oval gland located at the base of brain.

IMPORTANCE:-

→ It is called as Master Gland.

→ It is called so because it controls the secretion of other glands.

Parts:-

It has two parts:

- Anterior Pituitary
- Posterior Pituitary

Both are responsible for the secretion of different types of hormones.

Anterior: Anterior pituitary is larger and controls the secretion of many glands.

The hormones secreted by the anterior gland include

- Adenocorticotrophic Hormone
- Luteinizing Hormone
- Somatotrophin
- Melanocyte Stimulating Hormone

Posterior: Posterior gland is responsible for the secretion of two main hormones.

- Vasopressin or ADH
- Oxytocin

All these hormones perform diverse functions.

including controlling of blood pressure, milk production etc. which is why this gland is important as it is responsible for controlling all the glands that secrete these hormones.

(C)

RAM

→ RAM is called Random Access Memory.

→ It is temporary memory

→ It is volatile memory and data is lost when the power is turned off.

→ It can read and write documents and firmware.

→ It is faster.

→ It has less available storage.

→ It is built-in storage.

ROM

→ ROM is called Read Only Memory

→ It is permanent memory

→ It is non-volatile memory and data is saved permanently.

→ It is read only memory

→ It is slower.

→ It has more available storage

→ It can be built in or can be attained through external storage.

Nibble: Nibble is the second smallest unit of information.

→ It is also called as half byte.

→ It contains four binary digits.

USB: Universal Serial Bus or USB is a form of external storage device that is used to store data temporarily or for a few years.

→ It has variable storage ranging from few GBs to 1 TB.

→ It can store data for a long time but less than a flash drive.

Motherboard: Motherboard or system board is the main board which controls different electronic components of the computer including central processing unit and memory. It also works as connector between the peripheral devices.

(d)

COP 29 TARGET

COP-29 occurred in Baku, Azerbaijan from November 11 - November 22, 2024.

→ It raised serious concerns about the increasing temperature and global warming and pledged to limit temperature rise up to 1.5°C from pre-industrial levels as set in Paris Agreement.

According to Copernicus Climate Change Service (C3S) EU:

“2024 was the first full year where temperature exceeded 1.5°C from pre-industrial levels.”

→ This has alarmed all the international organizations especially Copenhagen Accords regarding climate change.

Targets of COP-29:

→ COP-29 set new targets and renewed the voluntary targets set by countries to control global warming.

→ It indicated that present targets were not enough to control the global temperatures below the targeted level.

→ It also urged the participating countries to renew their targets and work towards cleaner energy.

→ The host of this year Baku showed progress in renewable projects started by the country.

→ It also urged to reduce fossil fuel combustion and invest more in renewable energy projects.

→ It also indicated that developed countries need to invest more in developing countries to control temperature levels.

Bottomline:-

It is the need of the hour to shift global focus once again towards clean energy initiatives so that Paris agreement is maintained and global warming effects can be mitigated.

SECTION-B

QUESTION - 6

(a)

DATA:-

Depreciation each year = 10%

Present Value = Rs 8748

Solution:-

Price of washing machine = ?

3 years back

If the price is depreciated at 10% each year

$$\text{So 1 year back price} = \frac{10}{100} \times 8748$$

$$= 874.8 \text{ Rs}$$

$$\text{Price} = \text{Original Price} - \text{Depreciation}$$

$$= 8748 + 874.8 = \text{Rs } 9622.8$$

$$\text{So Price 3 yrs back} = \frac{10}{100} \times 9622.8$$

$$= 962.28 + 9622.8$$

$$= \text{Rs } 10,585.08$$

So Price of washing machine 3 years back is Rs 10,585.08

(b)

SOLUTION:

Let the age of daughter = x

∴ the age of father = y

Acc. to given condition:

$$y = 4x \quad \text{--- (i)}$$

After 5 yrs,

$$y + 5 = 4x + 5 \quad \text{--- (ii)}$$

Acc. to another condition

$$y + 5 = 3(4x + 5)$$

$$y + 5 = 12x + 15$$

$$y - 12x = 15 - 5$$

$$y - 12x = 10 \quad \text{--- (iii)}$$

Subtracting eq (i) from (iii)

$$y - 12x = 10$$

$$+ y - 4x = +1$$

$$\boxed{x = 9}$$

$$y = 4x$$

$$y = 4(9) = 36$$

After 5 yrs, Daughter's age = $9 + 5 = 14$ yrs

Father's age = $36 + 5 = 41$ yrs

After further 5 yrs ⇒ Daughter, 19 yrs & Father
46 yrs

so after further 5 yrs, he would be 5 times of his daughter's age i.e. 9 yrs

(c)

Diameter of football = 12 cm

Volume of football = ?

$$\text{Volume of sphere} = \frac{4}{3} \pi r^3$$

$$= \frac{4}{3} \times (3.14) \times (12)^3$$

$$= \frac{4}{3} \times 3.14 \times 1728$$

$$= 7234.56 \text{ cm}^3$$

Volume of football

(d)

Let length of train A = L_1

length of train B = L_2

1)

$$S = vt$$

$$V_1 = \frac{L_1}{27}$$

$$2) S = vt + xF$$

$$V_2 = \frac{L_2}{17}$$

3) Relative speed

$$S_1 + S_2 = \frac{V_1 + V_2}{t_1 + t_2}$$

$$V_1 + V_2 = \frac{L_1 + L_2}{23}$$

$$\frac{L_1}{27} + \frac{L_2}{17} = \frac{L_1 + L_2}{23}$$

$$\frac{17L_1 + 27L_2}{(27)(17)} = \frac{L_1 + L_2}{23}$$

$$V_1 + V_2 = \frac{27V_1 + 17V_2}{23}$$

$$23(V_1 + V_2) = 27V_1 + 17V_2$$

$$23V_1 + 23V_2 = 27V_1 + 17V_2$$

$$27V_1 - 23V_1 = 23V_2 - 17V_2$$

$$4V_1 = 6V_2$$

$$\frac{V_1}{V_2} = \frac{6}{4} = \frac{3}{2}$$

So ratio of their speeds is 3:2

QUESTION-7

(a)

Avg. of 7 consecutive numbers = 20

Let the numbers be $x, x+1, x+2, x+3, x+4, x+5, x+6$

$$\text{Avg} = \frac{x + x+1 + x+2 + x+3 + x+4 + x+5 + x+6}{7}$$

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

$$20 \times 7 = 7x + 21$$

$$140 - 21 = 7x$$

$$119 = 7x$$

$$x = \frac{119}{7}$$

$$\boxed{x = 17}$$

Largest number = $x + 6$

$$= 17 + 6$$

$$= 22$$

So largest number is 22