

# Difference b/w Igneous and Metamorphic Rocks

## A. Igneous Rocks

Definition: The rocks which are formed from hardening and softening of lava or magma are called Igneous rocks.

Magma is the soft form of rock inside Earth.

While Lava is the molten form of rock outside the surface of earth.

### 1. Types of Igneous rocks

#### i) Intrusive Rocks

The rocks which get hardened inside the earth surface are called intrusive Rocks.

#### ii) Extrusive Rocks

The rock type of Igneous rocks which gets hardened outside the earth surface when lava cools

down are called extrusive rocks

## 2. Examples of Igneous Rocks

i) Diorite and Granite are examples of Intrusive igneous rocks.

ii) Basalt and Andesite are examples of extrusive igneous rocks.

## Metamorphic rocks

Definition: The name metamorphic is the combination of two words meta means "change" and morph means ~~the~~ "form".

Therefore, the rock which changes into a new form due to extreme pressure and temperature is called metamorphic rocks.

### Types of metamorphic rocks

i) Foliated metamorphic rock

ii) Non-Foliated metamorphic rocks

## i) Foliated rocks

Rocks which have layered or banded appearance due to extreme heat and pressure are foliated rocks.

## ii) Non-foliated rocks

Rocks which have non-layered and no banded appearance are called non-foliated rocks.

## Examples of metamorphic rocks

i) Slate and schist are examples of metamorphic rocks (Foliated rocks)

ii) Marble and quartzite are examples of non-foliated rocks.

## Smog and its types

### Smog

Smog is the mixture of fog and smoke. But due to increasing pollution, it has more specific definition.

Smog is a special type of air pollution which consist of harmful pollutants that are introduced into atmosphere by both natural and anthropogenic activities.

### Smog formation

Smog forms when pollutants are released into atmosphere

For example,  $\text{SO}_x$ ,  $\text{NO}_x$  and  $\text{CO}_2$  are released into air due to burning of fossil fuels.

When these pollutants got suspended into atmosphere, along with water vapours results into formation of smog.

## Types of smog

### i) Photochemical smog

Photochemical smog is a mixture of pollutants  $\text{NO}_x$  reacts with sunlight, create a brown haze above cities is called Photochemical smog.

⇒ It usually forms in hot and dry climates.

⇒ It is mainly observed in cities with heavy traffics.

### ii) Industrial smog

The type of smog which is caused by burning sulfur containing fuels, especially coals is called industrial smog.

⇒ It usually forms in hot and dry climates.

It contains aerosol particles which appears gray.

## Significance of risk assessment in DRM

### 1. Risk assessment

Risk assessment is a systematic way of identifying and analyzing potential hazards and their consequences.

### 2. Risk assessment in DRM

So risk assessment in **DRM** (Disaster Risk Management) is the identification and analysis of potential hazards and consequences of a disaster. While DRM include strategies to reduce risk of disaster.

### 3. Significance of risk assessment in Disaster Risk management (DRM)

#### i) Helps identify potential hazards

Risk assessment help to identify potential hazards and make mitigation strategies in DRM.

#### ii) It helps to model disaster loss

Risk assessment helps to model disaster loss that how much is

the infrastructure loss, no. of deaths and damages.

iii) It identifies strength and weakness

It helps to recognize the strengths and weakness of a society to withstand a disaster

iv) It improve resilience against disasters

It helps to build resilience against disasters by preparing for a disasters.

v) It helps to divide regions

It helps to divides the region according to their risk level eg Red zone, yellow zone and green zone.

vi) It helps to save resources

Risk assessment is necessary because it can save the loss of limited resources by protecting lives, infrastructure.

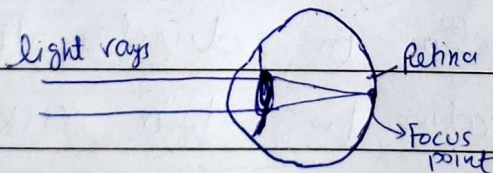
Explain far and short sightedness.

### Far sightedness

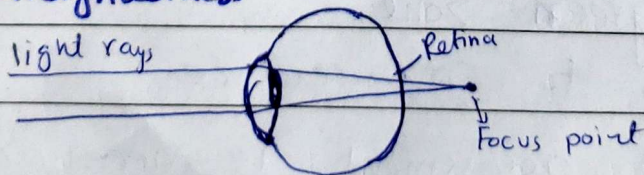
It is condition in which far objects are seen more clearly than nearby objects because light is focused ~~in~~ behind retina, not on it. Far sightedness is also called Hyperopia.

It can be corrected by using concave lens.

### Normal Vision



### Farsightedness



It can be seen that light is focused on behind the retina. Therefore, a person with farsightedness is unable to see nearby objects, clearly.

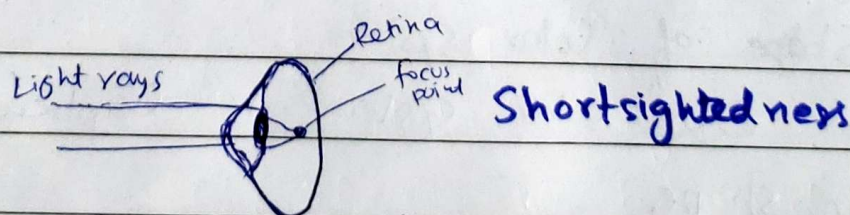
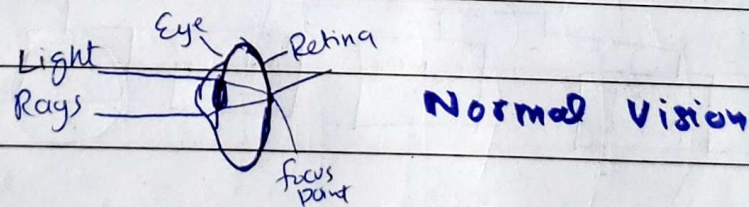


## Short sightedness

It is a condition in which nearby objects are seen more clearly visible than distant objects because light is focused in front of retina and not on it.

Short-sightedness is called myopia. This eye-disorder can be corrected by using concave lens.

In the normal vision light is focused on retina



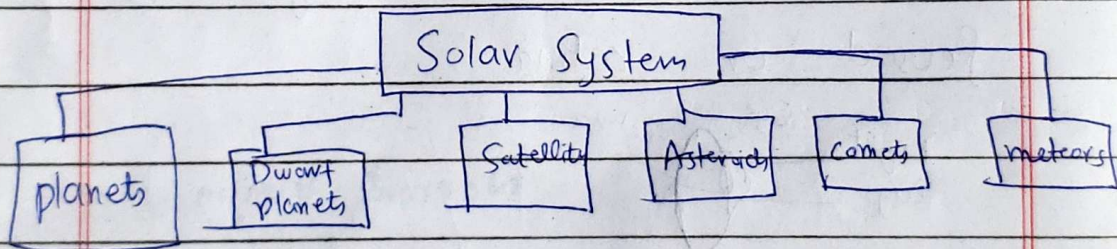
It can be seen that light rays are focused in front of retina and results in shortsightedness.

## Solar System

Solar system consists of a star and celestial bodies which revolve around the star.

Our

Our solar system consists of a sun, planets, dwarf planets, moons, asteroid belt, comets and meteors.



### Shape of Solar System

Our solar system is elliptical in shape.

### Centre of solar system

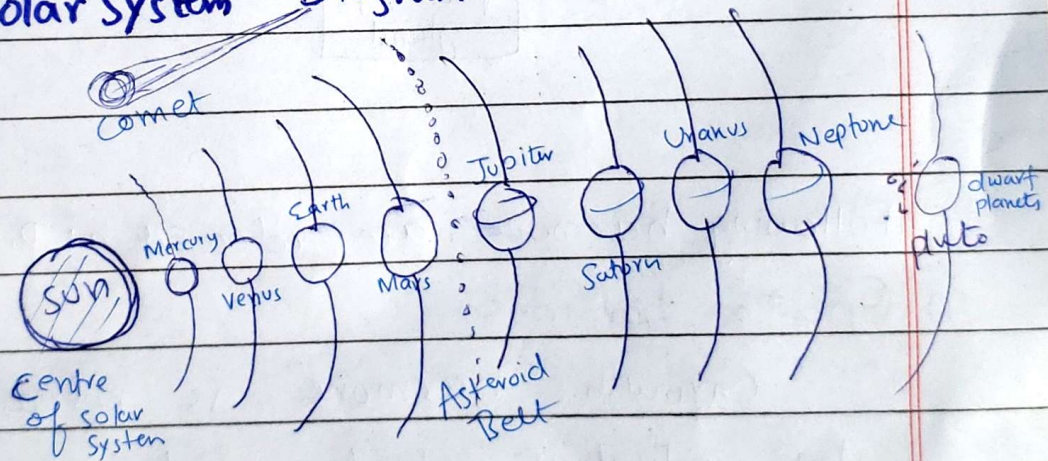
Our solar system's centre consists of sun. All the planets, dwarf planets, comets, Asteroids, satellites and meteors revolve around the Sun.

## Formation of solar system

Our solar system is 4.5 billion years old. It formed out of a huge clouds of gas and dust called solar nebula.

Due to gravitation force, the cloud collapsed and formed the sun and disc of matters formed planets

### Solar System Diagram



## Importance of pituitary gland

Pituitary gland is important because it control many bodily functions which includes growth metabolism, reproduction and stress response. Pituitary gland is present at the base of brain.

Pituitary  
gland

Following hormones are released by Pituitary glands.

### i) Growth hormone

Growth hormone is released by pituitary gland which maintains the balanced growth in humans.

### ii) Metabolism related hormones

⇒ Thyroid stimulating hormone control how much hormone is released to control thyroid.

⇒ Anti diuretic hormone control the water balance and fluid concentration in body.

Date: \_\_\_/\_\_\_/20

Day: \_\_\_\_\_

### iii) Reproduction related hormones

Pituitary gland releases Prolactin and Melanocyte-stimulating hormone (MSH)

Prolactin stimulates breast development, lactation and milk production. Its level increases during puberty and pregnancy.

MSH is released to regulate appetite and sex drive.

### iv) Adrenocorticotrophic hormone (ACTH)

This hormone is released to produce cortisol and reduce the stress.

### Answer Q4c

#### Difference between RAM and ROM

##### RAM

RAM stands for Random Access memory.

It is a type of memory which stores data temporarily.

It is also called computer's short

⇒ RAM is volatile and has limited capacity.

## ROM

ROM stands for Read only Memory

⇒ It is a type of memory which stores data permanently.

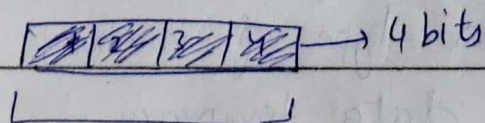
⇒ It is read only memory and cannot be modified

⇒ In contrast to RAM, ROM is non-volatile and has more capacity than RAM.

## Nibble

A nibble is unit of memory in a computer which made up of four binary digits. It is also known as half-byte.

Each digit in nibble is either 0 or 1.



Nibble

## USB

A USB is a mechanism in a computer to transfer the data between different devices and computers.

USB stands for Universal serial Bus.

## Mother board

Mother board is a collection of all the components of computer to a central point. For example, hard disk is connected to mother board.

Similarly, RAM, CPU, ROM, CDROM, USB, internet plug, power supply all are connected to mother board.

Mother board provides power supply and communication networks between all the components.

Q No. 4d

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COP29 targets to limit temperature rise to 1.5°C.

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Paris agreement

In 2015, at Paris agreement it was decided by conference of parties COP members to limit the global temperature rise to 1.5°C.

COP29 But due to ongoing industrial activities especially in the developed countries, the countries started to offset this limit.

Therefore, at COP29, some measures pledged by countries to reduce emission and limit temperature rise below 1.5°C.

i) Pledges by countries

Brazil pledged to reduce emission by 67% by 2035.

ii) Loss and damage fund.

Similarly loss and damage



fund of \$300 bn is approved  
in COP29.

Shift toward Renewable energy

Many countries have pledged  
to move from fossil fuels to  
renewable energy resources.

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### Section B

①

Q No. 7 (a)

Total Numbers = 7

Average of 7 numbers = 20

Largest Number = ?

Let,  $x$  be the 1st number, then

~~2nd~~ second number =  $x+1$

3rd number =  $x+2$

4th number =  $x+3$

5th number =  $x+4$

6th number =  $x+5$

7th number =  $x+6$

Now,

According to given condition

Average of 7 consecutive No.s = 20

$$\therefore \frac{x+x+1+x+2+x+3+x+4+x+5+x+6}{7} = 20$$

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

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

$$7x+21 = 140$$

$$7x = 140 - 21$$

$$7x = 119$$

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

$$\boxed{x = 17}$$

Now, the largest number is the 7th number

$$\therefore \text{Largest number} = x+6 = 17+6 = 23$$

### Q7b

C is the nephew of A's father.

It means C is the cousin of A.

D is the cousin of A and not the brother of C.

Similarly,

Since C is the cousin of A and D is the cousin of A. It

means that C and D are  
also Cousins.

So,

Relationship between C and D

is  
Cousin.

Q 7 C Missing Numbers

i) 4, 18, —, 100, 180, 294, 448

ii) 1, 2, 10, 37, 101, —

iii) 11, 17, 39, 85, \_\_\_\_\_

iv) 13, 24, 46, 90, 178 \_\_\_\_\_

The difference increase by multiplying 2 with each difference.

$$13 + 11 = 24, 24 + 2(11) = 46, 46 + 4(11) = 90, 90 + 8(11) = 178$$

$$178 + 16(11) = 178 + 176 = \boxed{354}$$

v) 4, \_\_\_\_\_ 144, 400, 900, 1764

$$2^2, \underline{6^2} \quad 12^2, 20^2, 30^2, 42^2$$

$$4, 36, 144, 400, 900, 1764$$

Clearly, difference between square of number is started from 4 and then increases by adding 2.

∴ Complete series is

$$4, \boxed{36}, 144, 400, 900, 1764$$

Q 7d Given

$$A : B = 1 : 2$$

$$B : C = 3 : 2$$

$$C : D = 3 : 4$$

$$A - D = 2240$$

$$B = ?$$

Solution

$$\frac{A}{B} = \frac{1}{2}$$

$$A - D = 2240 \text{ --- eq (A)}$$

$$\Rightarrow B = 2A \text{ --- (i)}$$

$$\frac{B}{C} = \frac{3}{2} \Rightarrow$$

$$\boxed{B = \frac{3}{2}C} \text{ --- (ii)}$$

$$\Rightarrow \boxed{C = \frac{2}{3}B}$$

and

$$\frac{C}{D} = \frac{3}{4} \Rightarrow$$

$$\boxed{C = \frac{3}{4}D}$$

$$\Rightarrow D = \frac{4}{3}C \text{ --- (iii)}$$

put value of C in eq (iii)

$$D = \frac{4}{3} \times \frac{2}{3}B = \frac{8}{9}B \text{ --- (iv)}$$

put value of B from eq (i)

$$\therefore D = \frac{8}{9}B = \frac{8}{9} \times 2A = \frac{16}{9}A$$

Now put value of D in eq (A)

$$\therefore A - \frac{16}{9}A = 2240$$

$$9A - 16A = 2240 \times 9$$

$$7A = 2240 \times 9 \Rightarrow A = \frac{2240 \times 9}{7}$$

320

7

Date: \_\_\_/\_\_\_/20

$$\begin{array}{r} 320 \\ \times 9 \\ \hline 2880 \\ \times 2 \\ \hline 5760 \end{array}$$

Day: \_\_\_\_\_

$$320 \times 9 = A$$

$$\boxed{2880 = A}$$

Now

$$B = 2A$$

$$\therefore B = 2 \times 2880$$

$$\boxed{B = \text{Rs. } 5760}$$

Q6(a)

$$r = \text{rate} = 10\% = 0.1$$

$$\text{present value} = P = \text{Rs. } 8748$$

price three years ago,  $T = 3$  years

Now, The price of washing machine, 3 years ago will be.

$$A = P(1 - r)^{\text{No. of years}}$$

$$= 8748(1 + 0.1)^{-3}$$

$$A = 8748(1.1)^{-3}$$

$$= 8748 \times 0.75$$

$$A = 6572$$

So, current price ~~was~~ is 8748and  $\boxed{\text{Rs. } 6572}$  three years ago.

Q66 Sol:-

Let daughter age =  $x$ 

daughter age father

$x$

$4x$

$3(x+5)$

$4(x+5)$

$x+10$

From given condition

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

$\Rightarrow 3x+15 = 4x+20$

$\Rightarrow 3x+15 = 4x+20$

$\Rightarrow 3x-4x = 20-15$

$-x = -5$

$x = 10$

father =  $4x = 40$  years

After 5 years

daughter :  $x+5 = 15$  yearsFather :  $4x+5 = 40+5 = 45$  years

Now, After 10 years,

father age is 50 years

Daughter age is 20 years

50 years, which is 2.5 times that of daughter.

So, Father is  $2.5$  times that of

Date: \_\_\_/\_\_\_/20\_\_\_ Volume of football Day: \_\_\_\_\_

Q6c volume formula is

$$V = \frac{\pi d^3}{6}$$

$$= \frac{\pi \times (12)^3}{6}$$

$$= \frac{3.14 \times 12 \times 12 \times 12}{6}$$

$$= 3.14 \times 144 \times 2$$

$$= 3.14 \times 288$$

$$V = 904 \text{ cm}^3$$

So volume of football is  $904 \text{ cm}^3$