

# Dos and Don'ts for General Science & Ability Paper

Hi there, you've done well. Know that June 30, 2024.

acquiring knowledge is one thing and reproducing it in paper according to what's asked is another. There are a few things I would like to highlight.

1. A 5 marks part requires 2 sides (not more than that) of a paper. Know that there can be two or three parts of a question and their marks are divided accordingly. So, address all of them in a just manner.

2. Focus on time management. You get 35 minutes to solve one question and about 8 minutes per 5 mark part. Manage your time accordingly.

3. You need to understand that your paper is supposed to look more scientific than theoretical. So, add flowcharts and diagrams where required.

4. Your handwriting and neatness can be really impactful. Avoid cutting and overwriting.

5. Focus on your spellings and your grammar.

Here, in GSA there's no deduction in marks but your expression will definitely create an impact.

6. In ability portion, give explanation for analytical ability question in words. You need to understand that a 5 mark part requires all steps written and explained.

Good luck for CSS 2025. You're gonna rock in sha Allah. :)

Peer - Influence: The human intelligence is linked with the association and influence of the peers. It is a general observation that a competitive pressure from peers enhanced I.Q.

Environment: There is a direct influence of a persons' living environment on the development of his I.Q. The depressing environment suppress I.Q. while joyful promotes I.Q.

Exposure and Education: Education is responsible for building the I.Q. as it exposes human to a multiple horizon. An educated person owns a higher I.Q. than an illiterate one.

### Factors affecting I.Q.

Age

Hereditary Influence

Peer-influence

Environment

Education



Q.No.7

b) Given:

Radius = 4 cm

shape = circle

solution:

As we know, the circumference of a circle is equal to  $2\pi r$

So,

$$\begin{aligned} \text{Circumference} &= 2\pi r \\ &= 2 \times \frac{22}{7} \times 4 \\ &= 25.12 \text{ cm} \end{aligned}$$

R.W

$$2 \times 8 \times 3.14$$

$$\begin{array}{r} 13 \\ 3.14 \dots \\ \times 8 \\ \hline 25.12 \end{array}$$

So, the circumference of the given circle is 25.12 cm

Q.No.7

c) Given:

No. of students = 5

Ages of students = 20, 22, 21, 21, 23

To find:

Mean = ?

Mode = ?

Median = ?

Range = ?

solution:

$$\begin{aligned} \text{Mean} &= \frac{\text{Sum of all Ages}}{\text{Total number of students}} \\ &= \frac{20, 21, 21, 22, 23}{5} \end{aligned}$$

20

21

21

22

23

107

21.4

$$\begin{array}{r} 21.4 \\ 5 \overline{) 107.0} \\ \underline{-106} \phantom{0} \\ 10 \phantom{0} \\ \underline{-10} \phantom{0} \\ 0 \phantom{0} \end{array}$$

20

$$\text{Mean} = \frac{107}{5}$$

$$\text{Mean} = 21.4$$

As, we know Median is the middle value in the arranged data.

Arranged ages = 20, 21, 21, 22, 23

$$\text{Formula of Median} = \frac{n+1}{2} \quad \therefore n=5$$

$$= \frac{5+1}{2}$$

$$= 3 = 3^{\text{rd}} \text{ value}$$

So Median is 21

Mode is the most repeated value

$$\text{so Mode} = 21$$

Range is the difference of the largest and the smallest value

$$R = X_m - X_o$$

$$R = 23 - 20$$

$$R = 3$$

So,

$$\text{Mean} = 21.4$$

$$\text{Median} = 21$$

$$\text{Mode} = 21$$

$$\text{Range} = 3$$



Q No 7

R.W

d) Given:

Investment of Tahir = Rs 15,000

$$= \text{Rs } 15,000 \times 12 \text{ (one year of investment)}$$

$$= \text{Rs } 180,000$$

$$\begin{array}{r} 15,000 \\ \times 12 \\ \hline 30,000 \\ 150,000 \\ \hline 180,000 \end{array}$$

Investment of Umar = Rs 30,000

$$= \text{Rs } 30,000 \times 7 \text{ (time of investment)}$$

$$= \text{Rs } 210,000$$

Investment of Usman = Rs 45,000

$$= \text{Rs } 45,000 \times 4 \text{ (time of investment)}$$

$$= \text{Rs } 180,000$$

$$\begin{array}{r} 45,000 \\ \times 4 \\ \hline 180,000 \end{array}$$

Profit = Rs 406,000

$$\begin{array}{r} 2452 \\ 21368.4 \\ \times 6 \\ \hline 128210.4 \end{array}$$

~~What~~ To find:

Share of each investor = ?

Solution:

As per the given situation, we know

Tahir : Umar : Usman

180,000 ; 210,000 ; 180,000

18 : 21 : 18

6 : 7 : 6

Sum of shares = 6 + 7 + 6 = 19

The profit gained was - Rs 406,000

So the

$$\text{share of Tahir} = \text{Rs } \frac{406,000 \times 6}{19}$$

$$= \text{Rs } 128210.4$$

$$\begin{array}{r} 21368.41 \\ 19 \overline{) 406000.0} \\ \underline{-381} \phantom{00} \\ 26 \phantom{00} \\ \underline{-19} \phantom{00} \\ 670 \phantom{00} \\ \underline{180} \phantom{00} \\ 114 \phantom{00} \\ \underline{180} \phantom{00} \\ -152 \phantom{00} \\ \underline{760} \phantom{00} \\ -57 \phantom{00} \\ \underline{23} \phantom{00} \\ -19 \phantom{00} \end{array}$$

$$\begin{aligned} \text{Share of Umar: } & \text{Rs } \frac{406,000 \times 7}{19} \\ & = \text{Rs } 21368.4 \times 7 \\ & = \text{Rs } 149,578.8 \end{aligned}$$

$$\begin{aligned} \text{Share of Usman: } & \text{Rs } \frac{406,000 \times 6}{19} \\ & = \text{Rs } 128,210.4 \end{aligned}$$

So, the shares of each are,

$$\text{Tahir} = \text{Rs } 128,210.4$$

$$\text{Umar} = \text{Rs } 149,578.8$$

$$\text{Usman} = \text{Rs } 128,210.4$$

Q. No. 89)

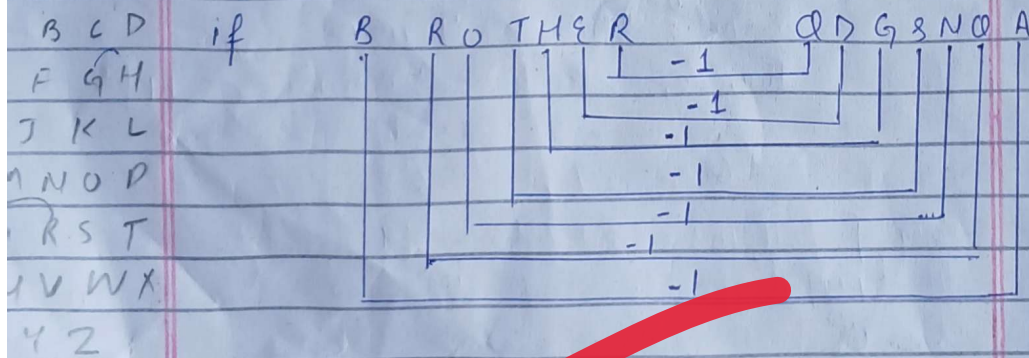
Given:

Code of BROTHER = QDGSNOA

Code of SISTER = ?

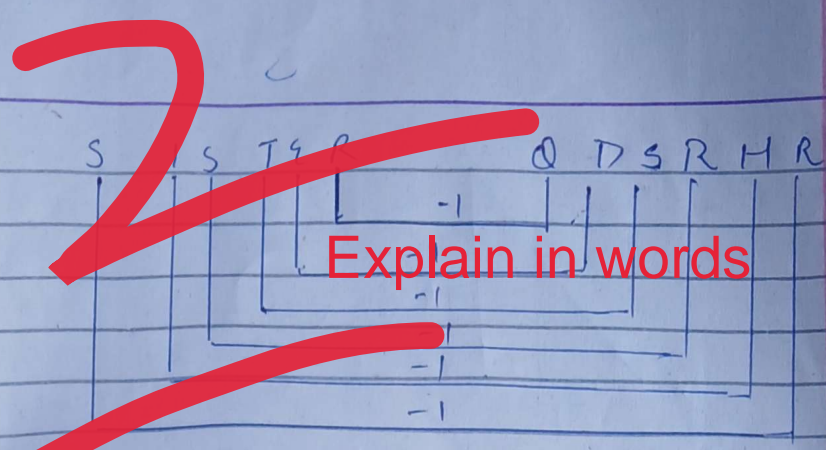
Solution:

R.W



So,





Explain in words

So, the required <sup>code</sup> of string is Q D S R H R

Q No-8

(b) Given

A series of numbers = 1, 2, 6, 21

Solution

$$(1 \times 1 + 1) = 2$$

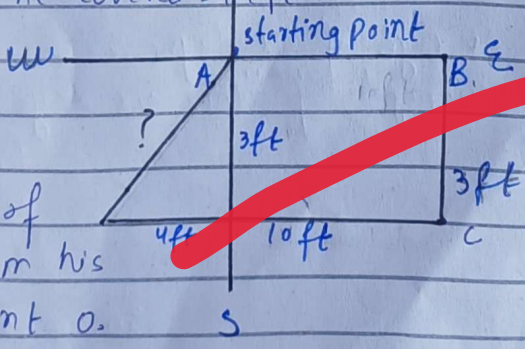
$$(2 \times 2 + 2) = 6$$

$$(6 \times 3 + 3) = 21$$

Q No-8

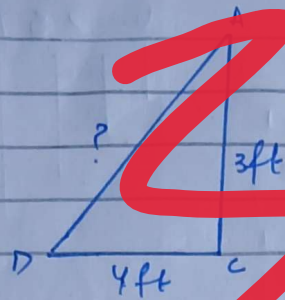
(c) Given:

Naseer walked from A to B = 10ft in East  
 from B Naseer covered = 3ft  
 from C he covered = 14ft



To find:  
 Distance of  
 Naseer from his  
 starting point O.

Solution:



According to the pythagorus theorem

$$(\text{Hypotenuse})^2 = (\text{Base})^2 + (\text{Perpendicular})^2$$

$$(\text{Hyp})^2 = (4\text{ft})^2 + (3\text{ft})^2$$

$$(\text{Hyp})^2 = 16 + 9$$

$$\sqrt{(\text{Hyp})^2} = \sqrt{25 \text{ ft}}$$

$$\text{Hyp} = 5 \text{ ft}$$

So, Naseer is 5ft far from A.

Given

average temperature of a week = 7 days =  $33^\circ\text{C}$

average temperature of first three days =  $30^\circ\text{C}$

average temperature of last three days =  $35^\circ\text{C}$

temperature on the fourth day of the week:

Solution

Average of 7 days =  $33^\circ\text{C}$

Average of other six days = Average of first three days +

Average of last three days

$$= 30^\circ + 35^\circ\text{C}$$

$$= 65^\circ\text{C}$$

The average of the fourth day = Average of



$$\begin{aligned} & 7 \text{ days} - \text{Average of 6 days} \\ & = 33^\circ\text{C} - 65^\circ \\ & = 32^\circ\text{C} \end{aligned}$$

So, the temperature of the fourth day of the week is 32°C.

## SECTION-1

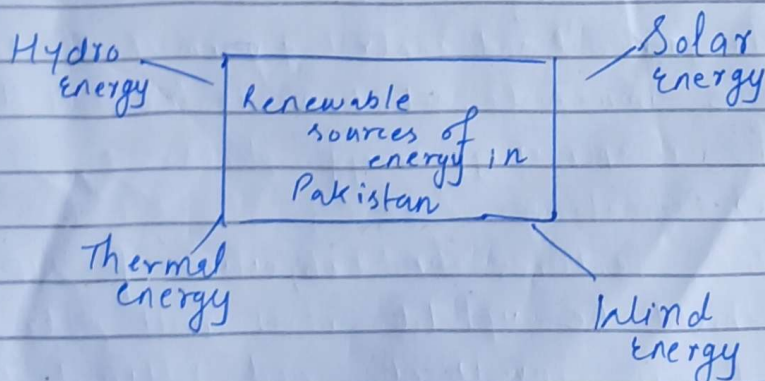
Q No. 4

### Renewable Energy in Pakistan:

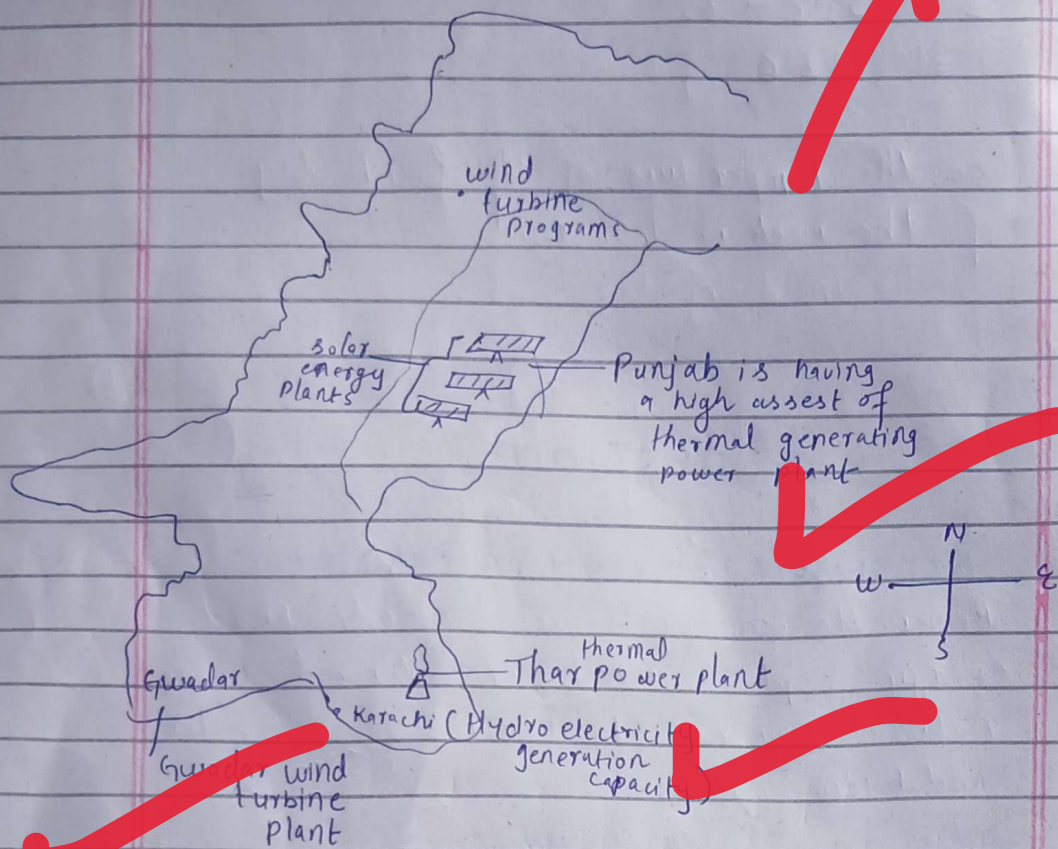
Renewable energy sources include those energy options which are derived from natural sources like thermal, wind, solar and hydro powers.

“The energy sources that can be replenished and are easily accessible are defined as renewable energy sources.”

Pakistan has a potential asset of renewable sources of energy. It includes,



## Energy Sources in Pakistan:



### Policies to maximize the utilization of present energy crisis:

currently, Pakistan is caught in a <sup>storm of energy</sup> crisis which can be calmed down by adopting these measures;

#### 1) Installing Cheaper Power Plants:

The provincial and central government should give immediate attention to the installation of cheaper energy plants.

#### 2) Promoting SIFC:

The features and objectives of SIFC should be updated which will attract foreign investment and ultimately



lead to the stable energy of Pakistan

3) Reviving CPEC with China.

Pakistan needs to revive the agreements with China <sup>signed</sup> in the light of CPEC. They will be a substantial advancement in overcoming energy crisis.

4) Encouraging local enterprises to invest in Renewable energy sector.

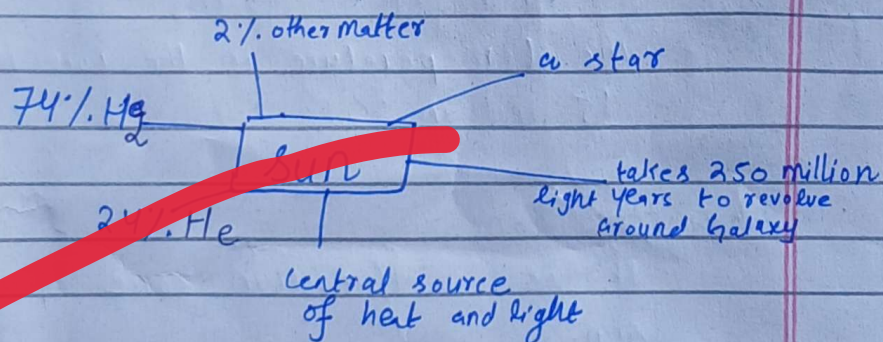
The local enterprises of Pakistan should be encouraged to invest in utilizing the renewable energy sources. It can be done by;

providing investor friendly loans  
lowering the taxes.

Q.No. 4

(b) Sun:

Sun is a star having gases in its core. It is a huge ball at the center of which gases are continuously burning and generating heat.



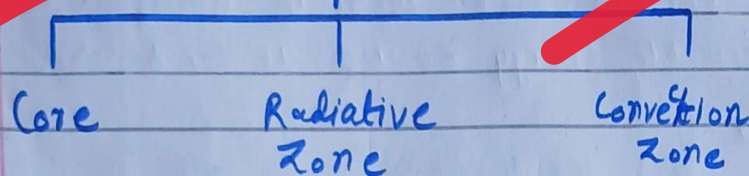
Structure of Sun:

Sun is a huge celestial body which is divided into two

parts known as  
sun's internal structure.  
sun's external structure.

## Sun's Internal Structure

Divided into three parts



### Core:

- Core is the central part of the sun
- It is responsible for the generation of heat.
- There are a continuous chain of fusion reactions going on in sun



- The temperature in the core is 15 million °C

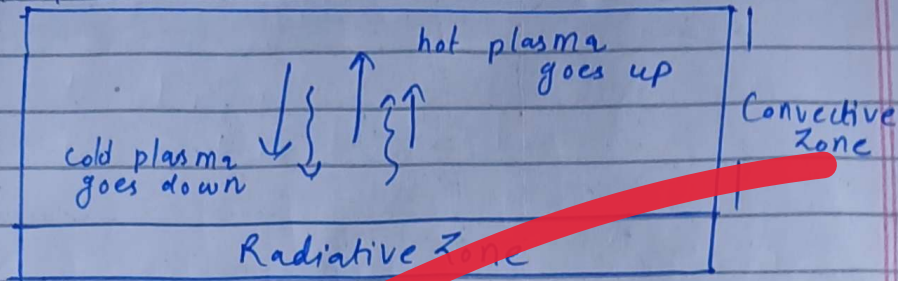
### Radiative zone:

- It is a transition zone of the sun.
- It carries energy as photons from core to the outer structure.

### Convective zone:



It is the outermost zone of the internal atmosphere in which convection current is generated



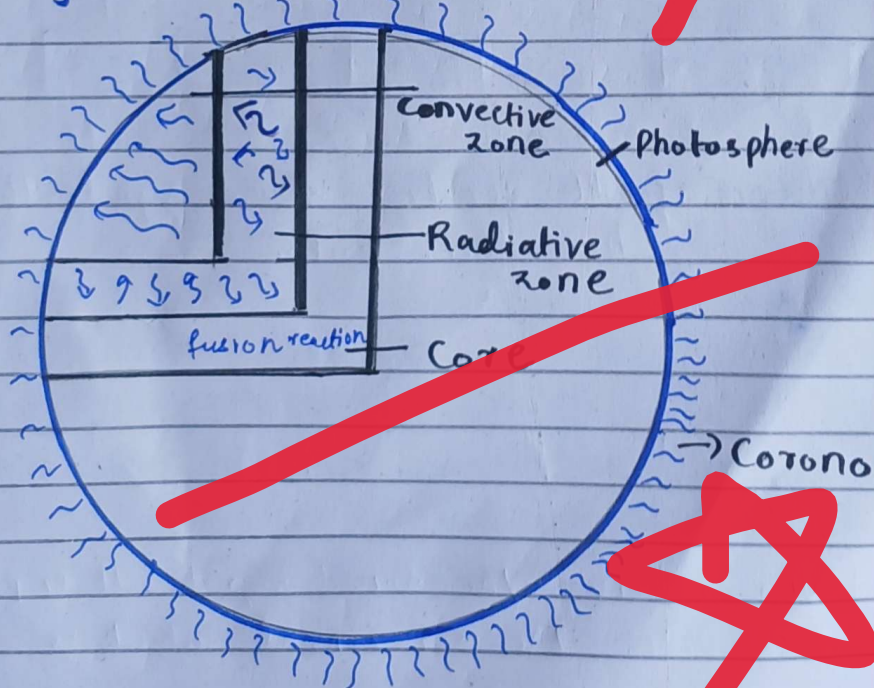
### Sun's Outer Surface:

**Photosphere:** It is the boundary between the sun's internal surface and the outer surface.

**Chromosphere:** It is layer which gives a bright and reddish colour to the sun.

**Corona:** It is outermost boundary of the sun visible from

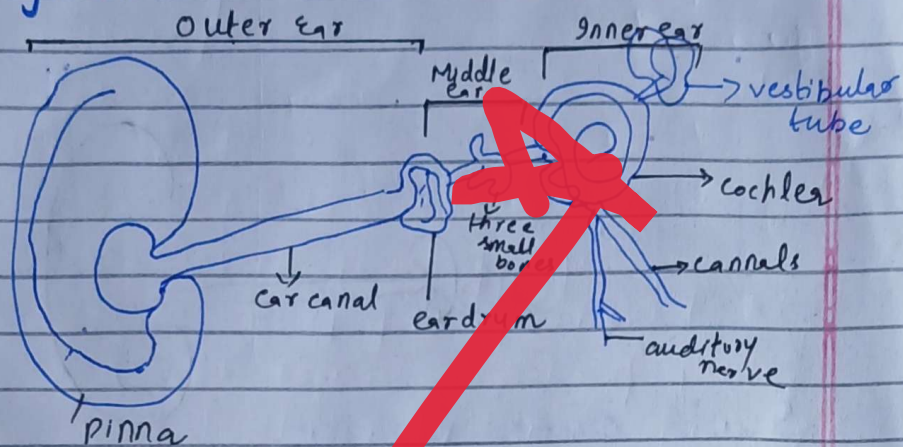
Diagram: outside.



## Structure of Ear:

Q. Not Diagram:

d)



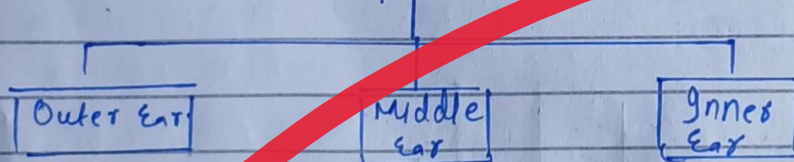
## Human Ear:

Ear is the organ that maintain the balance of the human body and assist body in hearing.

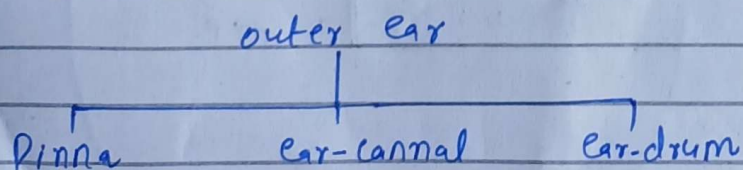
## Structure of Ear:

The human ear is divided into three parts.

### Parts of Human Ear



Outer ear: It receives sound signals. It has three parts.



Pinna receives the sound signals. It propagates them into the ear-canal which is



a tube. The sound signals travels from pinna and hit against the ear-drum which vibrates upon receiving them.

~~Inner~~ <sup>Middle</sup> Ear: Inner ear has a set of three bones known as malleus, ~~incus~~, stapes and eustachian tube.

~~Inner~~ Inner Ear:

Inner ear has cochlea and canals. These structures are linked with nerves that carry the auditory signals to the brain.

Q No 5.

a) **Artificial Intelligence:**

Artificial intelligence is defined as the computational intelligence which is used to perform functions which were previously performed by human intelligence.

"The replacement of human intelligence with computational intelligence is called artificial intelligence."

**Possibility of AI to outsmart Humans**

There is a possibility that AI would outsmart human in the coming future.

It is due to numerous capabilities and strengths of AI

AI will surpass humans as,

1) AI is developing at a rapid speed.

2) AI has been employed and utilized in <sup>almost</sup> every sphere of life.

3) AI is performing complex tasks which requires a lot of focus and attention by humans for instance surgeries, transplants etc.

4) AI is stress and fatigue free technology. On the contrary humans get fatigue and feel stress.

5) AI has initiated a new game in the world which is overtaking every countries.

Q No. 5

b) **Rock:**

Rock is a naturally occurring compound formed either inside or outside the core of the earth.

"A naturally occurring compound having distinct features formed by the inner core or <sup>due</sup> to the changes on the outer surface of earth is called rock"



## Rock Formation:

Rocks are formed either,  
on the crust of the earth  
or inside the mantle of the earth.

There are different processes involved in the formation of rocks. The inner rocks are formed by,

- 1) lava or molten magma
- 2) Inner biological or chemical changes of the earth's core
- 3) decomposition of the organic matter.

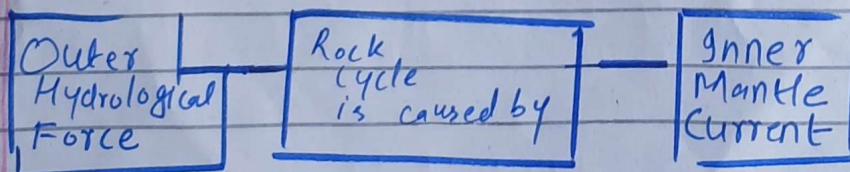
The outer rocks, present on the surface of the earth, are formed by

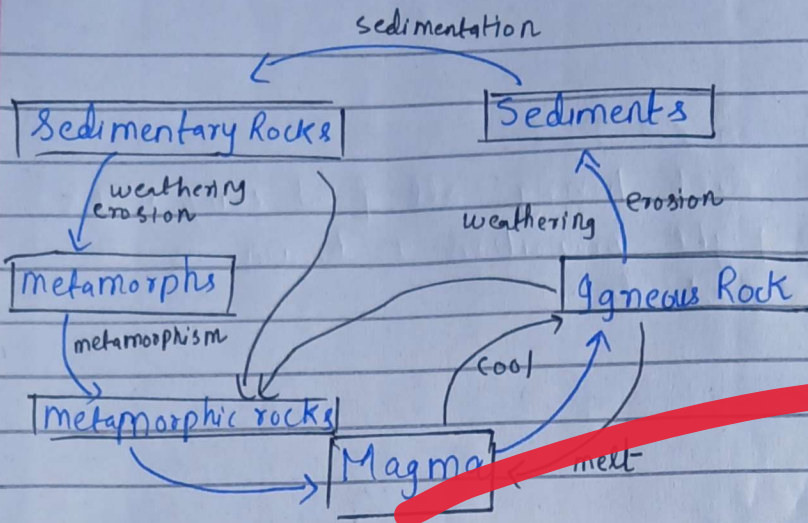
- 1) Weathering
- 2) Erosion
- 3) Transformation of rocks from one type to another

## Rock Cycle:

Rocks are being formed and transformed continuously. There is no definite start of a rock cycle.

Forces Responsible for Rock cycle:





## Types of Rocks:

There are three basic of rocks:

**Igneous Rocks:** The rocks which are formed by the magma are called igneous rocks.

They are divided as intrusive and extrusive igneous rocks.

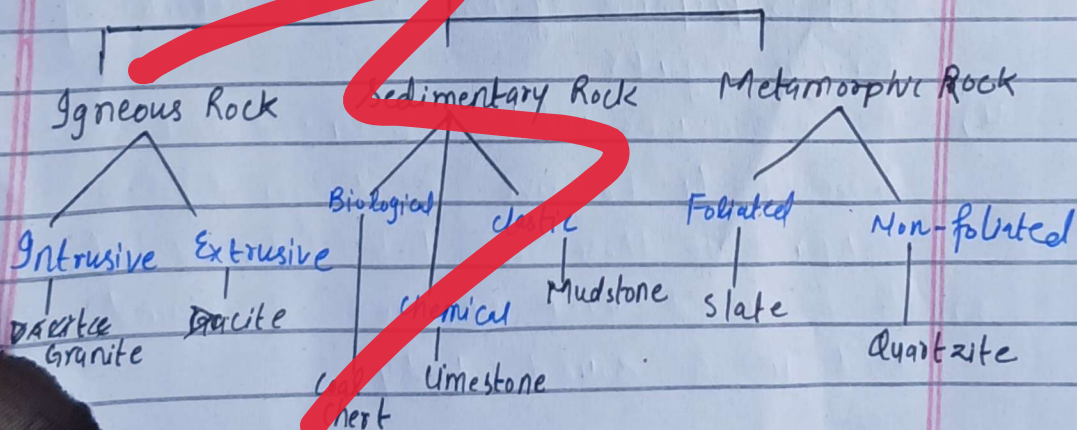
**Sedimentary Rocks:**

The rocks that are formed due to the biological or chemical changes going on in the earth are called sedimentary rocks.

**Metamorphic Rocks:**

The rocks which are formed due to the transformation of sedimentary and igneous rocks are metamorphic rocks.

## Rocks





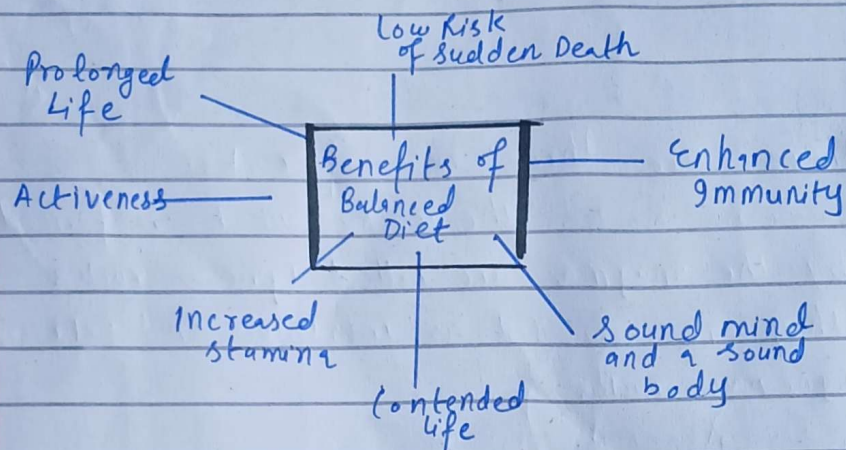
Q No 5

### d) Balanced Diet:

A diet having all food components in right proportion is known as a balanced diet.

### Pie chart

### Benefits of Balance Diet:



- 1) A person who takes a balance diet is having a strong immunity.
- 2) The intake of balance diet promotes stamina and activeness in the body.
- 3) There is a low risk of sudden casualty of a person who takes balance diet as his body is prepared against sudden attacks of foreign agents.
- 4) A person who intakes: balanced diet is more likely to live a longer life as compared to those who lack balanced diet.
- 5) A balanced diet ensures a sound mind in a sound body.