Samha Shaikh

Date: _____ Day: _____

Question NO:06 (a)

V good
Good for math work
Enough length of theory portion
Enough headings
Fine diagrams

Data:

Candidate A = 15000 votes
Candidate B = 10000 votes
Candidate C = 8000 voles
Total votes = 15,000 + 10,000 + 8000
= 33,000 votes.

Solution:-

Candidate A got maximum votes.

$x\% \times 33{,}000 = 15000$

$x\% = \frac{15000}{33000} \Rightarrow$

$x = 100 \times \frac{15}{33} \cdot 2$

$= 100/2.2$

$= \frac{1000}{22} \Rightarrow \frac{45.45}{500/11}$

$x = 45.45\%$

Hence, candidate A got 45.45% of total votes. Answer.

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Question 6(b)

Data :

Ratio of angles of triangle = 3:4:5

Total

Sum of angles of triangle = 180°

Solution:

Sum of ratio = 3+4+5 = 12

Angle A = $\frac{3}{12} \times 180$

Angle A = 45 degrees

Angle B = $\frac{4}{12} \times 180$

Angle = 60 degrees

Angle C = $\frac{5}{12} \times 180$

Angle C = 75 degrees

Sum of angles = 45 + 60 + 75

= 180°

Hence, 45, 60, 75 are angles respectively

Date: _____ Day: _____

Question 6 (c)

Data:

Group = 4 boys and 6 girls
Girls = 102
Boys = ?

Solution:

Each group consists of 6 girls.

$$\text{Groups} = \frac{102}{6} = 17$$

17 groups possess 102 girls.

Each group has 4 boys
Total boys in 17 groups = 17 × 4
Total boys = 68

Hence, 68 boys are required, if 102 girls are available for such groupings

Answer.

Date: Day:

Question 6 (d)

Data:

$A:B = 6:7$

$A+5 : B+5 = 7:8$

present ages of A and B = ?

Solution:

$$\frac{A}{B} = \frac{6}{7}$$

$$A = \frac{6B}{7} \quad \text{Equation (1)}$$

$$\frac{A+5}{B+5} = \frac{7}{8} \quad \text{Equation (2)}$$

put equation (1) in (2)

$$\frac{6B/7 + 5}{B+5} = \frac{7}{8} \quad \text{(Cross multiplication)}$$

$$\left(\frac{6B}{7} + 5\right)8 = 7(B+5)$$

$$\frac{48}{7}B + 40 = 7B + 35$$

$$40 - 35 = 7B - \frac{48}{7}B$$

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$$5 = \frac{49B - 48B}{7}$$

$$5 = \frac{B}{7}$$

$$\boxed{B = 35}$$

Put the value of B in equation (1).

$$A = \frac{6B}{7}$$

$$= \frac{6(35)}{7} = 30$$

$$\boxed{A = 30}$$

Hence, the present ages of A and B are 30 and 35 respectively. Answer.

$$\Rightarrow \frac{A+5}{B+5}$$

$$\Rightarrow \frac{30+5}{35+5} \Rightarrow \frac{35}{40} \Rightarrow 7:8$$

hence proved.

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Question NO: 8(a)

Data:

Sum of consecutive odd numbers = 273

Solution:

Let 'x' be an odd number.

then,

Three consecutive odd numbers will be $x, x+2, x+4$

$$x + x + 2 + x + 4 = 273$$

$$3x + 6 = 273$$

$$3x = 273 - 6$$

$$3x = 267$$

$$x = \frac{267}{3}$$

$$\boxed{x = 89}$$

$$\boxed{x + 2 = 91}$$

$$x + 4 = 89 + 4$$

$$\boxed{x + 4 = 93}$$

Hence, 89, 91, and 93 are three consecutive odd numbers.

Answer.

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Question 4, 16, 36, 64, ?

Solution

4, 16, 36, 64

i)

ii)

Day:

Day:

Question 8(b)

i) 4, 16, 36, 64, ?

Solution

4, 16, 36, 64, 100 (addition of 8 in the previous difference)

ii) 30, 29, 27, ?, 20, 15

Solution:

30, 29, 27, 24, 20, 15

(27 - 3)

iii) 1, 7, 15, 25, ?, 51

Solution

1, 7, 15, 25, 37, 51 (25 + 12)

iv) 0, 2, 6, 12, 20, 30, ?

Solution:

0, 2, 6, 12, 20, 30, 42 (30 + 12)

v) 48, 24, 72, 35, 108, ?

48, 24, 72, 35, 108, 53

Date: _____ Day: _____

Question 8(c)

1- THRSI

Thirst

2- GNDREA

Danger

3- SCHAMOT

Stomach

4- ONLNDO

London

5- HIODALY

Holiday

Day:

Question 8 (d)

Data:

Sara mother = 6x sara

Sara brother = 2x sara

After 3 years.

Sum = 72

Present ages = ?

Solution.

Let Sara mother = S.M

Sara brother = S.B

Sara = S.

S.M = 6.S Equation 1.

S.B = 2.S Equation 2.

S = S.B/2 Equation 3.

$(S+3) + (S.M+3) + (S.B+3) = 72$ (4)

put Equation 1 and 2 in Equation 4.

$S+3 + 6S+3 + 2S+3 = 72$

$9S + 9 = 72$

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$9S = 72 - 9$

$9S = 63$

$S = \frac{63}{9}$

$S = 7$ years old

put 'S' in equation 1 to get 'S.M.'

$S.M = 6 \times 7$

$S.M = 42$ years old

Put 'S' in equation 2 to get 'S.B'

$S.B = 2(S)$

$= 2 \times 7$

$S.B = 14$ years old

Hence, present ages of Sara, her brother, and her mother, are 7, 14, and 42 respectively Answer.

Day:

Question NO: 05 (a)

Food preservatives.

Food preservatives are used to preserve food from insects, enzymes, moisture, heating, and microbes.

Methods of food preservative

Food is preserved between 16°C to 38°C.

a- Heating:

The food is preseved by increasing its temperature through heating. Once the temperature crosses 38°C, it kills all microbes.

Example:
Pesteurization of milk.

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b) Cooling:

The temperature of food is decreased by the process of cooling. When the temperature decreases to 16°C and lesser, the wall of bectaria shrinks and it kills them.

c) Drying:

The food is also preserved by the process of drying. 80% of bectaria are due to the moisture.

d) Smoking:

This is the method to preserve dead bodies. Farmaldehyde is used in this process.

Day:

e- Sugar and salt brines:

These are used to preserve food. Salt brines are mostly used for fishes.

f- Chemicals and Acids:

Chemicals and acids are also used to preserve food. Ascorbic acid is used in soft drinks.

g- Radiations:

The food is exposed to radiations. Such radiations kill the microbes present in the food.

h- Packing and Canning:

This method

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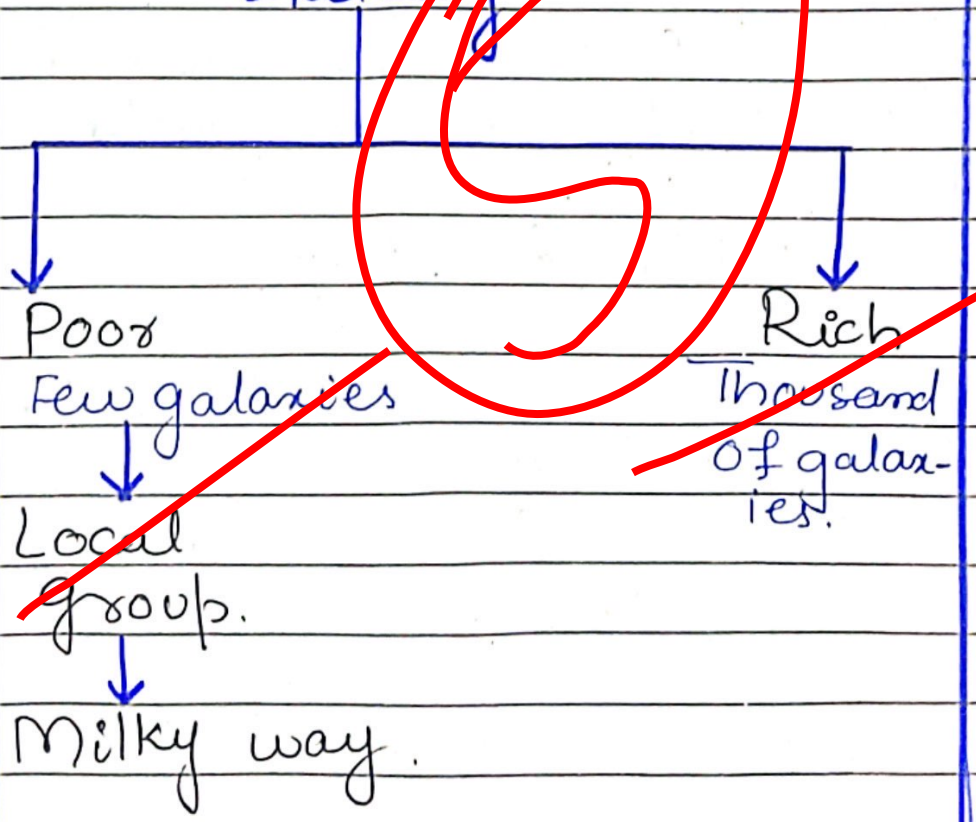
is used to preserve food for longer time. It protects food from external impurities while exporting food.

Question 5(b)

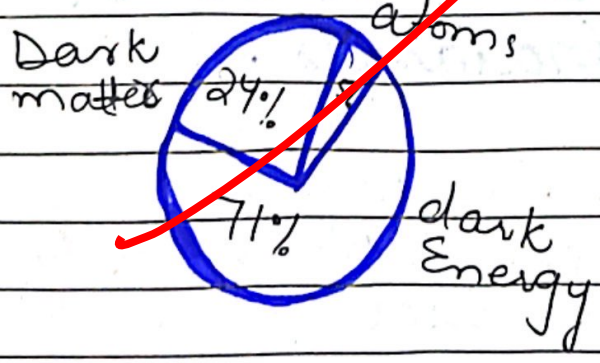
Milky way :-



Day:

Milky way is the galaxy in which the live exists. Earth, along with solar system, is the part of milky way. It has multiple arms including Sagittarius arm. It possesses lunar objects, stars and multiple planets including earth where we live.

Dark matter is related to galaxies.



The galaxies are moving with such high

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high speed that it is impossible for graritational force to hold them together. This led scientists to beliere that there exists strange matter which provides glaxies with extra mass and graritational force which holds them together. That strange matter is known as Dark matter.

Different Parts of Galaxies :-

Galaxies are the graritational body which posses dark energy, dark matter and celestial bodies.

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* They possess different parts such as arms, solar system and the like.

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Question NO: 5(c)

Eclipse:

When any large body comes under the shadow of two large bodies such as moon and earth is called eclipse.

Distinguish between Solar and lunar eclipse.

Solar Eclipse	Lunar Eclipse
When moon comes in between earth and Sun, Solar eclipse occurs	When Earth comes in between sun and moon, lunar eclipse occur.

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	It occurs twice in a year	It occurs in every month
3-	It occurs in new moon	It occurs in full moon
4-	It has three types: total, partial and umbral	It also has three types: partial, penumbral and umbral
5-	In total solar eclipse, the internal disc gets black and forms a ring shaped structure	In penumbral, the moon is positioned at the penumbral region

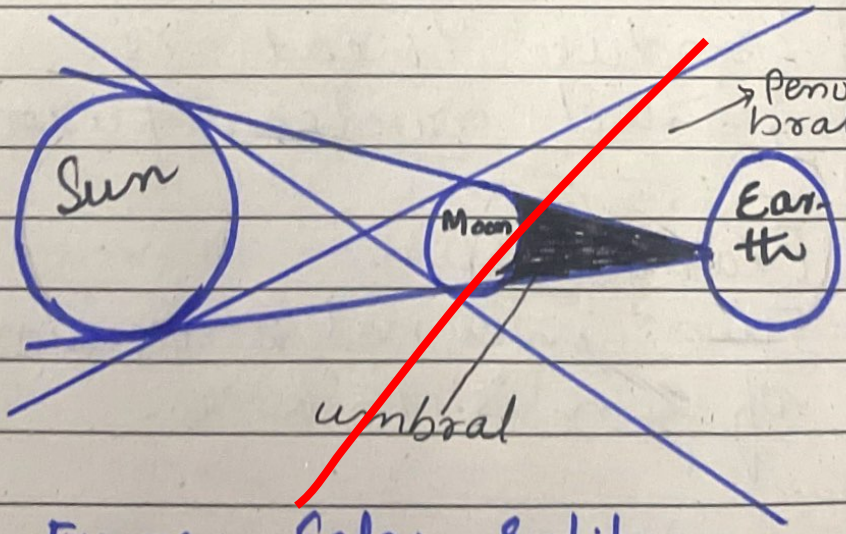
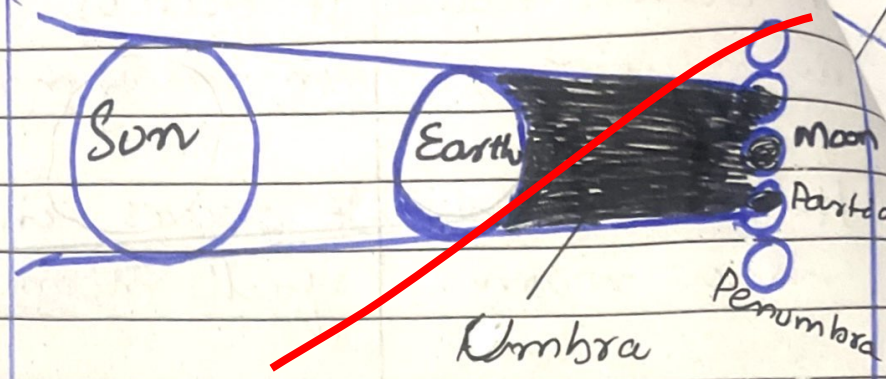


Figure: Solar Eclipse.

Date: _____ Day: _____



Fg: Lunar Eclipse.

Question NO: 5(d)

Nuclear fusion :-

The process in which the particles fuse together to produce heat is called nuclear fusion

Example: Sun

The internal temperature of sun is 15 k °C.

Day:

Nuclear fission:-

The process in which the particles breakdown into various other particles which then react with some other particle and the chain goes on.

Example: Nuclear boomb (U^{235}) and Nuclear reactor.

Ionic Bond:

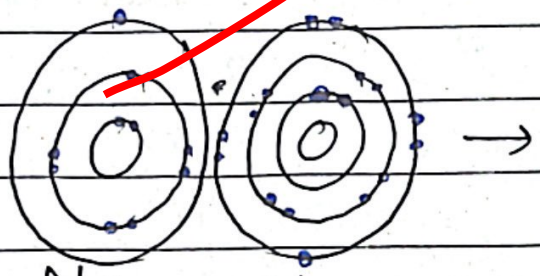
The chemical bond in which the transfer of electrons take place is known as Ionic bond.

Date:

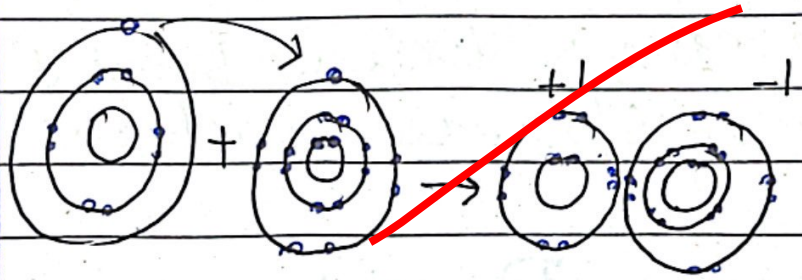
Table Salt:-

NaCl.

Na^{23}_{11} Cl^{35}_{17}



Na Cl.



Sodium possesses one electron in its outer most shell. clorine possesses seven electrons in its valence shell. Hence, sodium gives or donates one electrone to clorine to

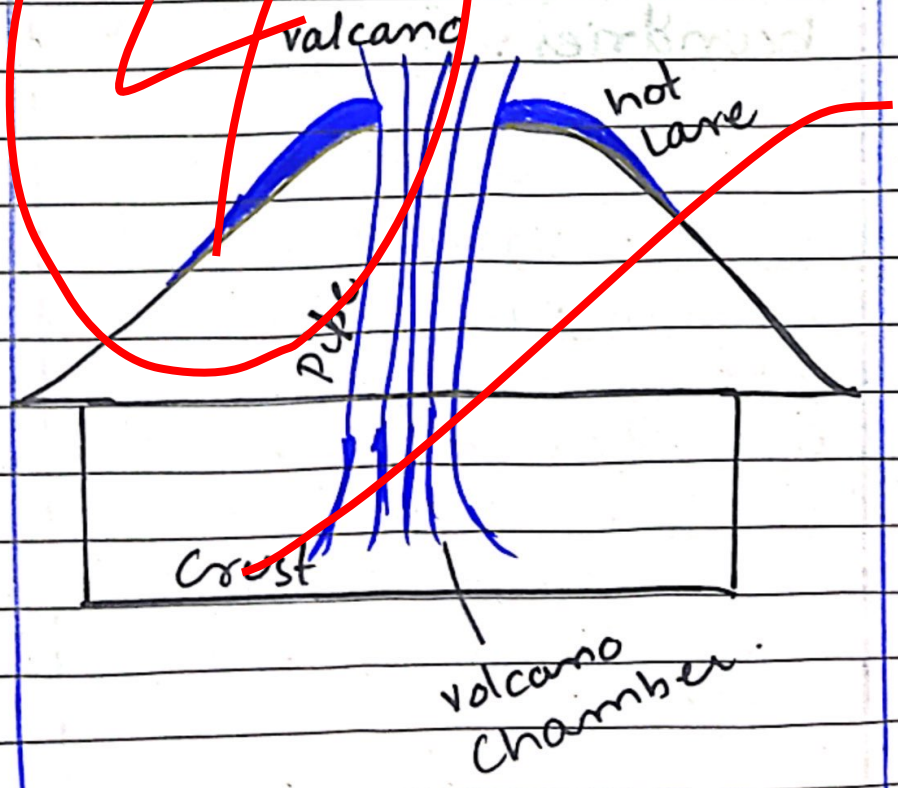
Day:

make it stable. This complete transfer of electron form Ionic bond.

Question NO: 02.

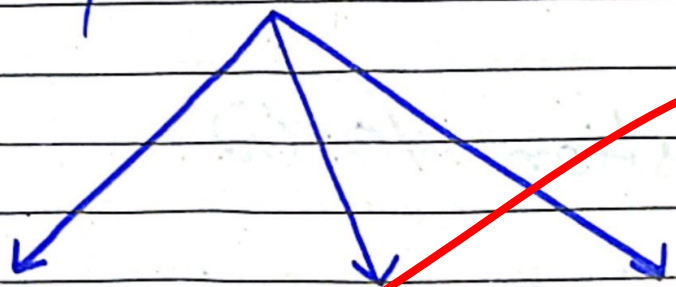
Volcano Eruption

When there is a movement in the tectonic plates then the volcano erupts.



Date: Day:

Causes of volcano eruption:



Divergent and subduction boundries | Hotspot | mantle lumes.

a- Divergent and convergent boundries:

When the tectonic plates diverge or converge, volcano erupts which results in ridges and mountains. When boundries converge, one tectonic plate subducts and volcano erupts.

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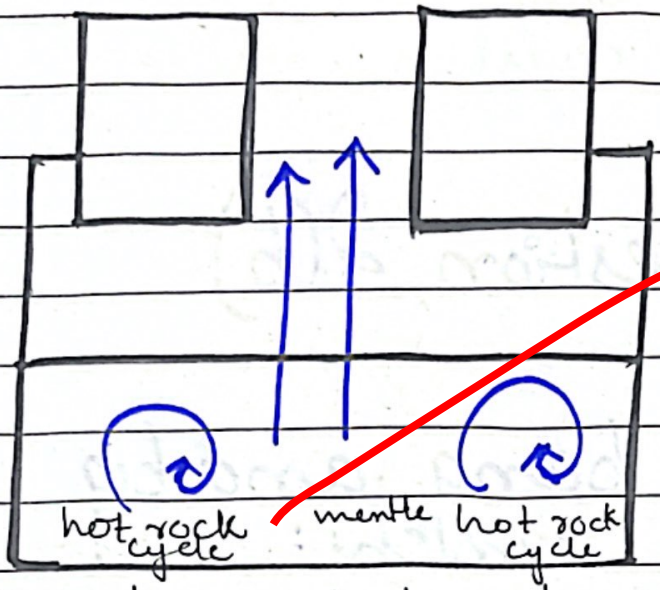


Fig: divergent boundaries.

Hotspots:

Hotspots inside the crust also cause volcano eruption. Hotspots increases the temperature inside the crust and molten lava erupts.

Mentle lumes:

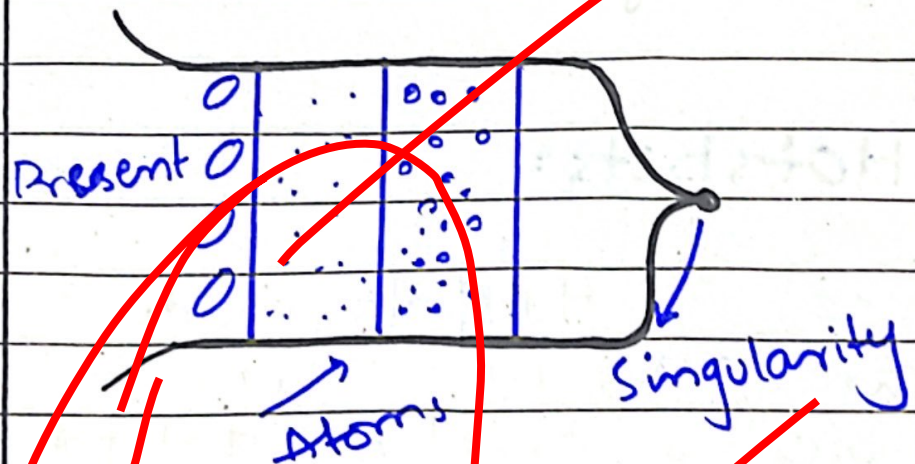
Mentle lumes is formed due to

Date: Day:

high temperature which also cause volcanoes

Question 2(b)

Big bang and big crunch:



Big bang and big crunch is a theory given by George lemaitre in 1931. According to this all the matter was

Day:

presented at a single point known as Singularity.

The energy is converted into matter $E=mc^2$

The matter is again converted into energy and some matter is remained in the form of electron, protons and neutrons.

Neutrons and protons are met to form nuclie

Nuclie catches electrons to form atoms of hydrogen and helium.

This laid to the foundation of celestial bodies.

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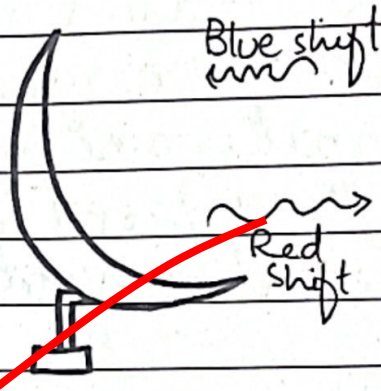
Age of Universe:

a- Through travel time: Red shift theory:



Scientists determined the age of universe on the principle of redar. As the stars show red shift, it is travelling away from universe. By measuring the travel time, the age of universe can be measure. According to them, 13.8bn years is the age of universe.

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Day:

Theory of expansion : Hubble's Constant.

The age of universe can be medsures by measuring the expansion of the universe. According to Hubble, if the earth is flat and it consists of matter only then the age can be found out by $\frac{2}{3H}$

If the earth has Low density then the explorated age will be $\frac{1}{H}$.

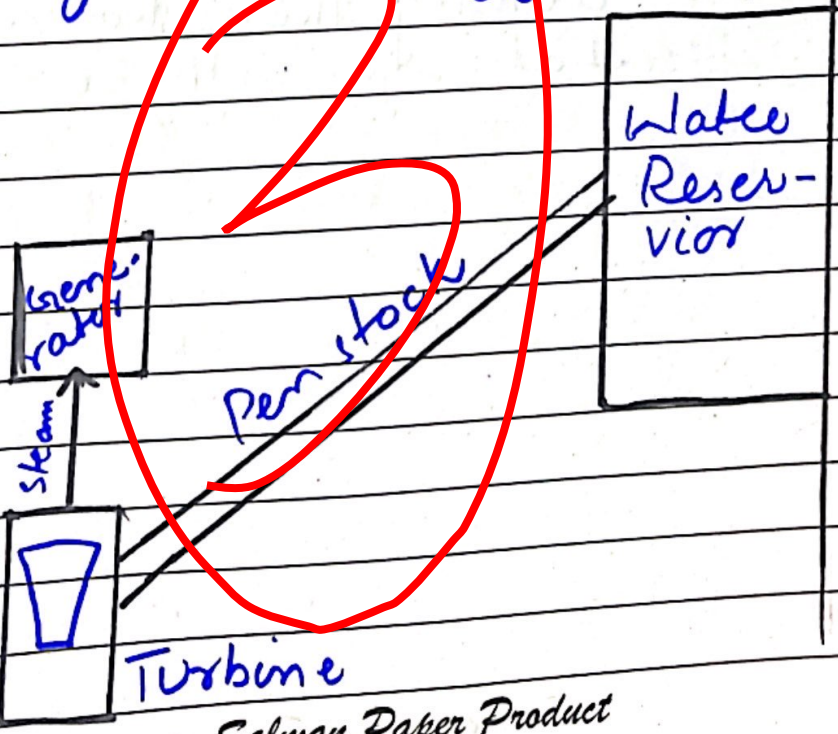
Date: Day:

Q2(c)

Renewable Energy:

The energy which is present in abundance and can never be replinshed is called renewable energy.

1- **Hydro Energy :-**



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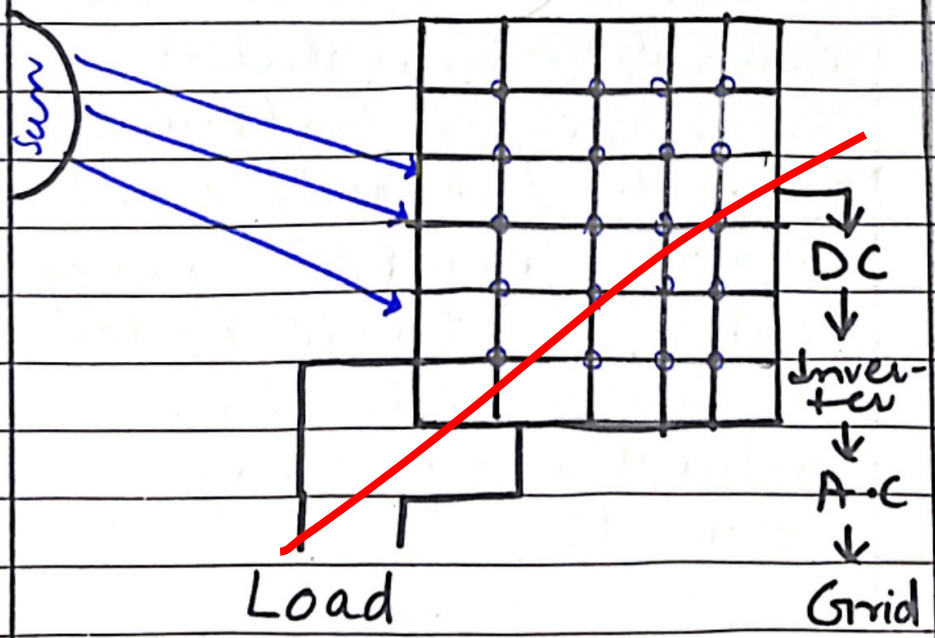
Day:

Water is stored in the reservior and it falls in the turbine which converts steam into mechanical energy and it is then converted into electrical energy through generator.

Solar Energy.



Date: Day:

When the protons falls on the solar penal, it exites electrons. free electrons starts moving and current is produced.

$$I = q/t$$

Wind Energy:

When the wind, having speed greater than 15 km/hr., strikes the blades of turbine it starts moving and converts kinetic energy into mechanical which is then coverted into electrical energy through generator.

Wind → Turbine → Generator
S>15km/hr K.E→M.E M.E→E.E

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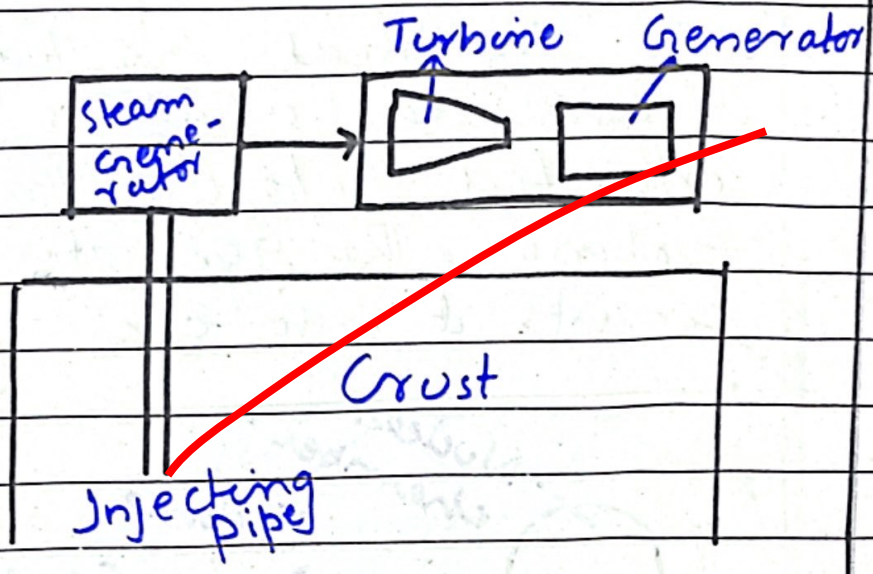
Geothermal Energy:



The pipe is injected inside the earth crust. The hot water then flow towards steam generator. The steam is then more towards turbine which converts it into M.E. It is then converted into E.E.

Nuclear Energy:

The Uranium

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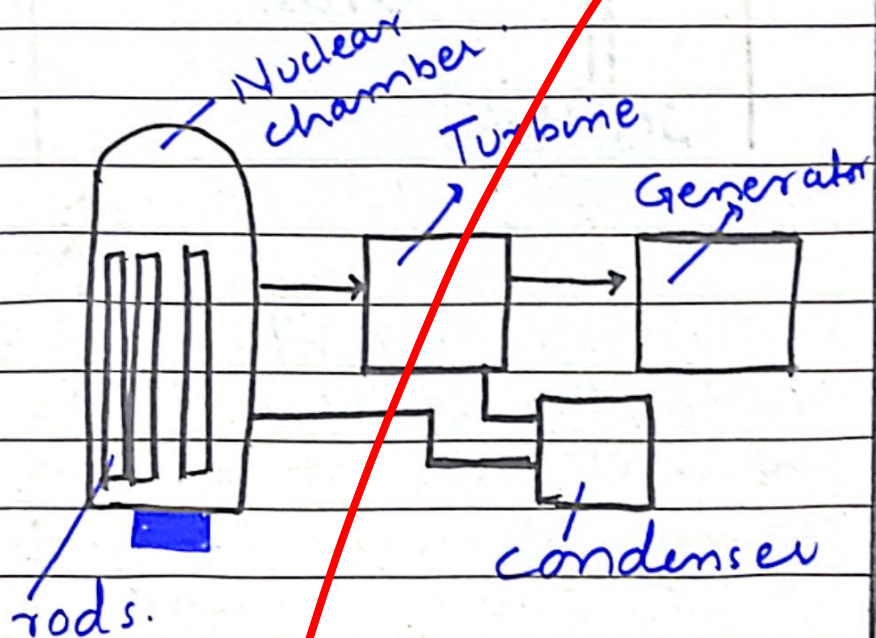
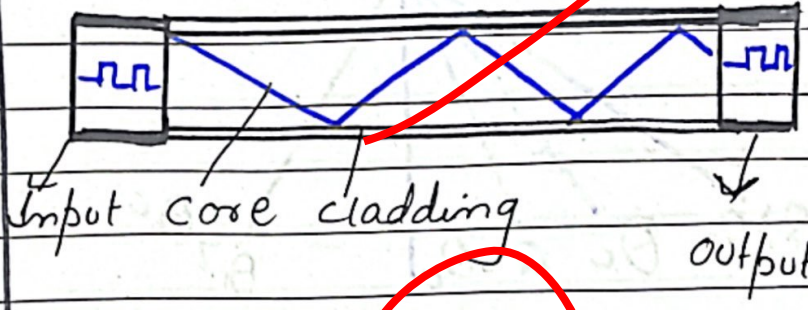
is present inside the chamber which is provided with the heat. The steam is generated which is converted into M.E through turbine. The generator converts it into E.E.



Date: Day:

Question 2 (d)

Optical Fibre.

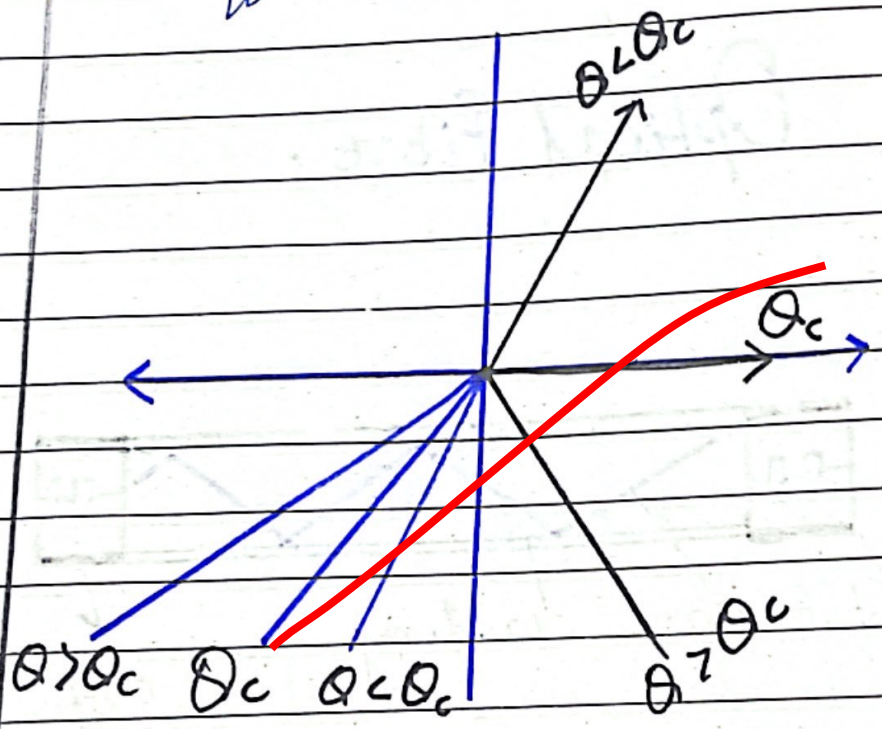


Fibre optics are used to deliver information to the large distance without interruption.

The input signal is sent to the core and the transmission occurs at $\theta > \theta_c$. This is because the total internal reflection makes

Date: Day:

it efficient.



Due to this, the energy is less consumed as the signal remains in the core. The signal is then transfer to transmitter where it is converted back to the digital data. The user finally gets the information.