

Question: 04

(a) Distinguish

(i) Cyclone:

Cyclone is a result of warm air of oceans, causing a chaos in water bodies.

(ii) Tornado:

Tornado is a result of a thunder storm with low pressure inside, coming clouds to the land.

(iii) Hypocenter:

Hypocenter is a point inside earth, where ~~earthquake~~ originates.

(iv) Epicenter:

Epicenter is a place exactly above the hypocenter on earth during a earthquake.

(v) GPS:

The Global Positioning System is a satellite based navigation system that using ~~trilateration~~ principle to show location, position and distance on earth.

(vi) GIS:

Geographic Information System is a computer based system that attain, store, analyze, visualize, and interpret data by using control unit, user and space unit.

(vii) RAM:

The Random Access memory is a primary type of computer memory that is non-volatile.

(viii) ROM:

The Read Only Memory is a type of computer memory that is volatile and not moving.

(ix) Pesticides:

Pesticides are the chemical substances that are being used to kill pest, rodents, and other organism.

(x) Insecticides:

Insecticides are chemicals being used to kill insects to increase yield of products and reduce risk of diseases.

4

Date _____
(b)

VOLCANO Eruptions:

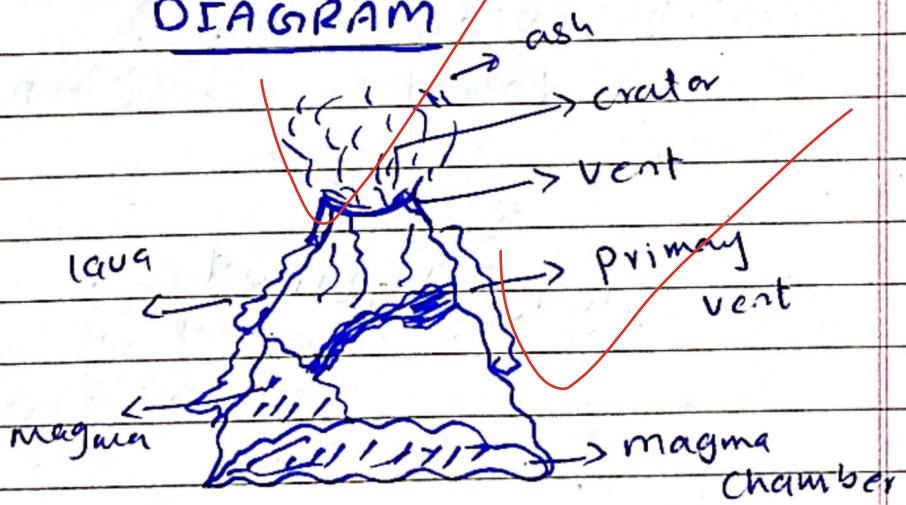
Volcano is a cone shaped mountain like area having ability to explode due to lava or magma.

(a) How Volcano erupted:

(i) Magma Formation:

Deep inside the earth element decay and trapped heat caused temperature to increase, causing the rocks to melt and forming magma inside the chamber.

DIAGRAM



(ii) High pressure and Heat:

Melting rock, high pressure, and heat glow push the magma to move up toward the crust through cracks.

Date:

(iii) Magma exploded near crust:

movement of magma up toward crust making crust unstable

(iv) Volcanic Eruption:

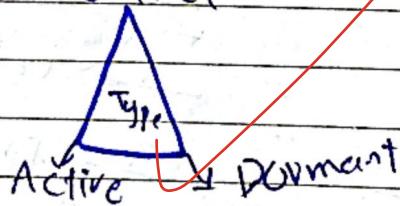
Finally, magma heat erupted and ash, dust, rocks, and smoke come out of vents and crater is formed.

(v) Lava formation:

After cooling down on earth lava is formed.

(vi) Types of volcano:

Extinct



4

X ————— X

(C)

Pyrolysis, incineration,
composting

(a) Pyrolysis :

It is a process of waste management in which:

(i) Heat is being used:

Heat with moderate frequency used to burn the waste.

(ii) In the Absence of Oxygen:

NO oxygen uses in Pyrolysis to burn the waste.

(b) Incineration:

A process of waste disposal through heating the waste.

(i) A closed container of Iron:

A closed container is being used to burn the waste into ashes.

(ii) Temperature :

A very high temperature is required in incineration.

(iii) Presence of oxygen:

Heating the waste in the presence of oxygen.

• Benefits:

- Ash is being used as fertilizer
- Heat is used to get energy

(ii) Composting:

It is a biological method to dispose off waste.

(i) microorganisms:

In this process living organisms use to degrade the waste.

(ii) Biological waste:

It is feasible to degrade the biological waste.

④

• Benefits:

No Pollution

Inexpensive

easily

available

quick

to work

Benefit

(d) Balance Diet

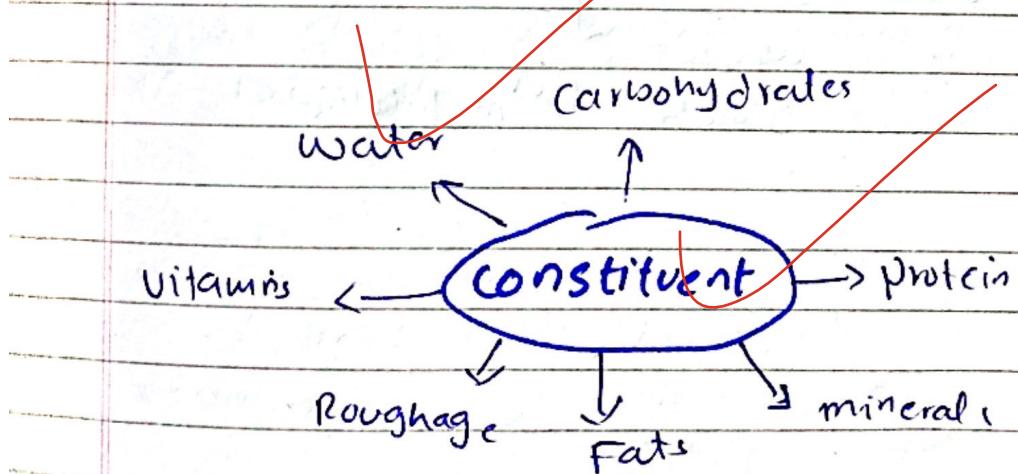
Definition:

Balance diet refers to the diet that contains the essential nutrients in right quantity and proportion, that help body to grow and function properly.

Concept:

"Balanced diet is a right diet to balance the metabolic activities in a body."

Constituents of balanced diet:



Benefits:

Balanced diet help body to grow and increase metabolic

activities.

metabolism

prevent
diseasesStrengthens
Bone and teeth

Benefits

Increase
Immune
System's
Power

Hormones

Formation

Repair

damaged cells

what are the impacts of an
unbalanced diet?

Prevalent of

rickets

↑ disease

malnutrition

even
death

impacts

poor
vision

anemia

weak

growth

poor
metabolism

25

26

Question No: 2

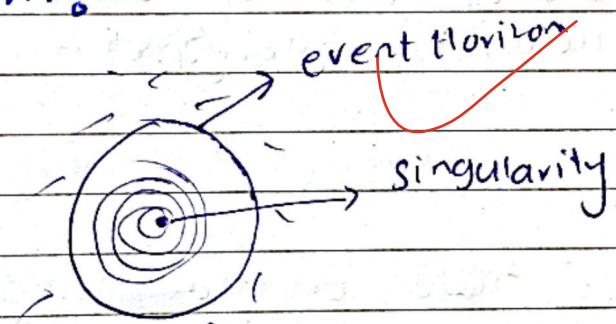
(a)

Black Hole

(i) Black Hole :

A black hole is an invisible body in space that has enough energy to capture even light, causing a loop to trap everything.

(ii) Diagram :



(iii) How black hole Formed :

(a) Death of Stellar :

A star with time becomes inert as its fuel ~~wipes~~ out. So, it can sustain the gravity. It dies.

(b) EXPLOSION:

when fuel of star burns out, its core explodes.

(c) SUPERNOVA FORMED:

First the outer shell after explosion changes into a supernova, a bright light.

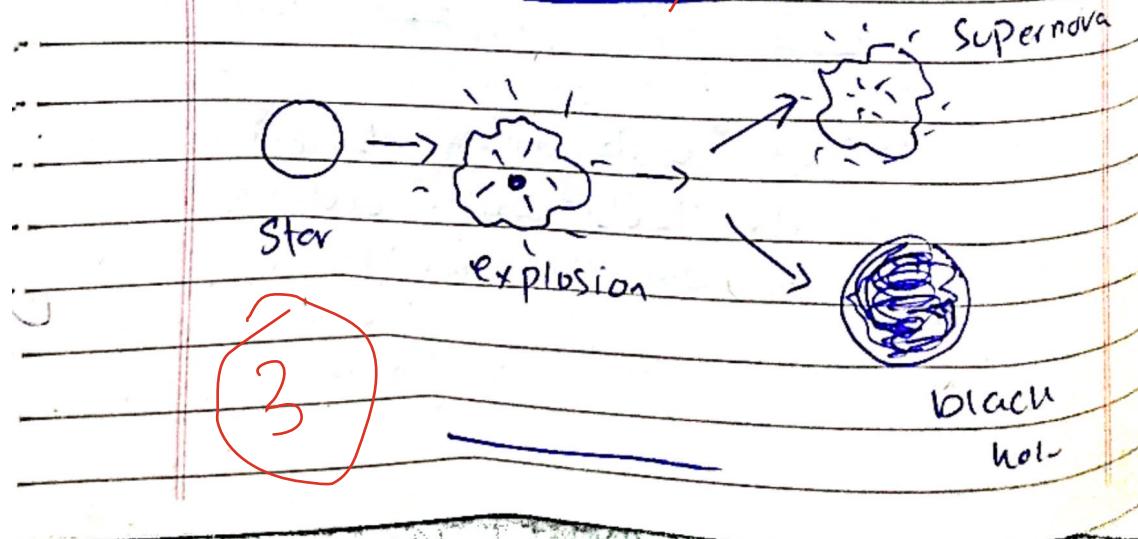
(d) BLACK HOLE FORMED:

core of the star after explosion change into a black hole with immense energy.

(e) MERGING OF BLACK HOLES:

Two or more small holes merge together to form a bigger black hole

Diagram:



(b)

octet rule

(a) Octet rule:

Octet rule in chemistry is a process of the completion of the outer most valence shell with maximum eight electrons.

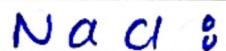
(b) Concept:

"atom attains eight or two (duplet) electrons to get stability."

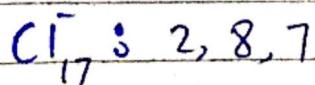
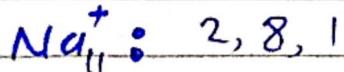
(c) Properties:

- Atom attains eight electrons
- It completes valence shell
- Ensures Stability.

(d) Example: Table salt NaCl



Configuration:



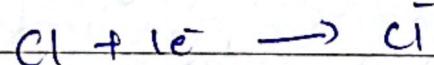
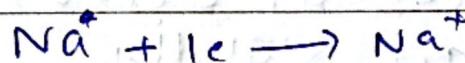
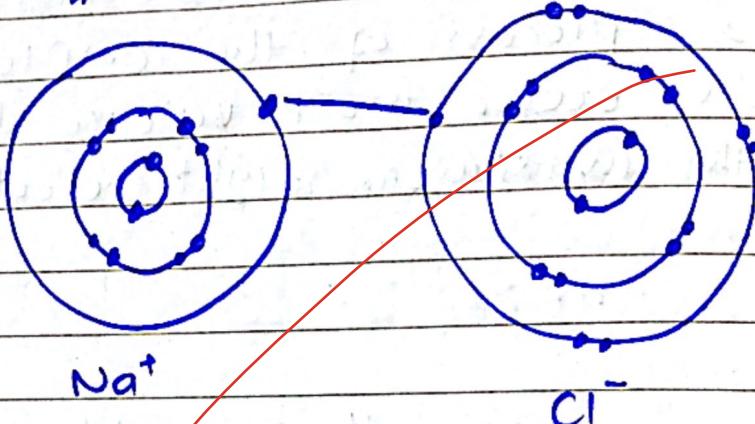
Date:

~~Day:~~

Reactions:

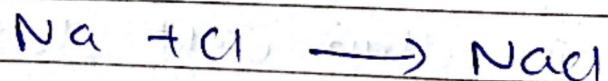
Reaction!
Sodium donates its one electron to chlorine, completely its outermost shell.

$$\overline{Na_u} = 2, 8, 1$$



(3)

Overall reaction:



— + — + — + —

(C)

USES OF RADICATIONS

(a) Microwave:

(i) cooking:

microwaves are being used in microwave oven to cook food now a days.

(ii) laboratory:

various labs used microwaves to perform medical imaging.

(b) Radio waves:

(i) communication:

Radio waves are a mean to communicate today.

example:

mobile networks

(ii) Remote control:

various remote controls of home appliances used radio waves.

3

(d)

Agenda about AI

(a) Purpose of conference:

Rishi Sunak was then PM hosted this conference to counter unethical use of AI without regulations.

(b) Agenda about AI:

(a) Regulatory framework:

It was proposed to devise a moral and ethical regulatory framework to avoid threats.

(b) Laws and legislature:

There would be a proper legislation through Parliament to check the AI's growth.

(c) End of Biases:

Ethical monitoring to curb the use of AI bias during

Facial recognition

(d) International cooperation

It was decided to cooperate on AI so that unethical use of AI could be mitigated.

SECTION II

Question: 7

Missing terms:

(i) 11, 13, 17, 23

Solution:

11, 13, 17, 20 23

91

9
915

364

3
370

5
50

(ii) 10, 28, 91, 370,

Solution:

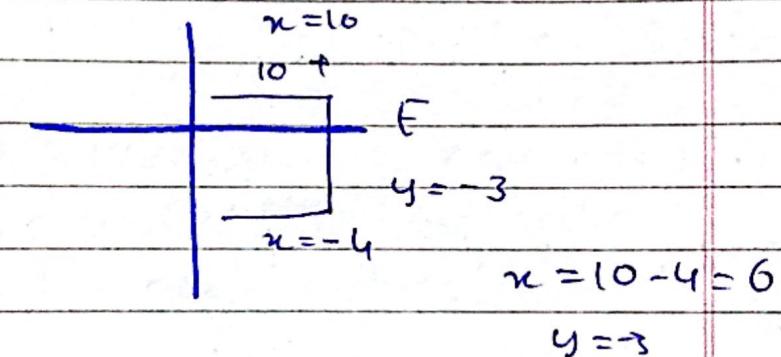
10, 28, 91, 370, 1855

$$\begin{array}{r} 10 \times 2 = 20 \\ 28 + 3 = 31 \\ \hline 1855 \end{array}$$

Q: No: 8

Solution:

Data:



So,

$$d = \sqrt{(6)^2 + (-3)^2}$$

$$= \sqrt{36 + 9}$$

$$d = \sqrt{45}$$

(d)

MADRAS AS NBESBT

Then
BOMBAY AS CPNCB2

91 364

5
45

2

29

20

20
95

(c)

probability

Solution:

$$= \frac{10}{16}$$

76
6
16

$$\boxed{\text{yellow} = 0.3375}$$

16 100
96
6
48
2