

Q3

Ans a) I. Introduction: Chemical Bonding

Atoms of elements other than noble gases have tendency to make bonds with other atoms to stabilize themselves.

II. Definition of chemical bonding

An atom comes close to another atom to stabilize itself by ^{complete or mutual} sharing of its electron is called chemical bonding.

All the atoms other than noble gases make bond with other atoms.

III. Types of chemical bonding

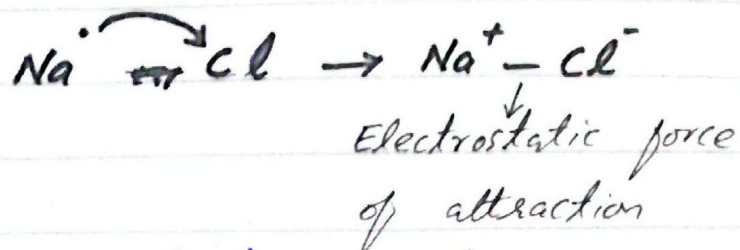
A- Ionic Bonding:

It is a kind of chemical bonding in which atoms completely share their electrons for chemical bonding. One atom gives its electron and makes positive ion. Another receives electron and forms negative ion.

Example:

In NaCl, Na gives

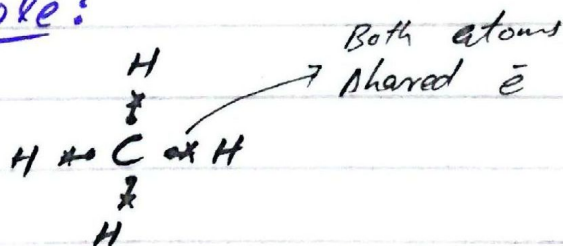
its electrons and Cl accepts it.



B. Covalent Bonding:

The kind of bonding in which two or more atoms shared their electrons mutually to make a bond is called covalent bonding.

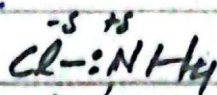
Example:



C. Co-ordinate Covalent bonding:

A kind of covalent bond in which one atom or a group of atom shared a pair of $\bar{e}$ to form bonding is called coordinate covalent bonding.

Example:



↑
 NH_4 sharing a pair of $\bar{e}$

Q3

Ans b) I. Introduction: causes of floods and reliable suggestions

Floods are the product of climate change are wreaking havoc from many years in Pakistan. Their causes need to be addressed by taking effective measures.

II- Causes of Floods in Pakistan

A- Result of climate change

Climate change, a major threat to global security, is a cause of floods in Pakistan.

B- Changing weather patterns:

Owing to climate change weather patterns are changing, and cloudbursts led to floods in the country.

C- Melting glaciers:

Melting glaciers with a rapid pace is also a cause of floods in Pakistan.

D- Deforestation near the bank of the rivers

Deforestation for commercial or domestic purpose led to weakening the soil resulting in floods when water comes in the rivers.

III. Suggestions to cope up the floods

A. Role of regional and global efforts to counter the menace:

Climate change is not an issue of a country or a region, it is a borderless issue, therefore, global and regional efforts are required to control it.

B. Strict actions against the cutting of trees and mountains:

Strict actions are required to control deforestation and mountain cutting which intensified the situation.

C. Shift to non-renewable energy resources

Shifting to non-

renewable energy resources is helpful to control climate change which causes floods.

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Ans c) I- Introduction: Galaxies formation and evolution

Galaxies are the major celestial bodies in the universe containing huge mass and gravitational system.

II- Formation of new galaxies

New galaxies are formed by following processes:

A- Striking of two galaxies

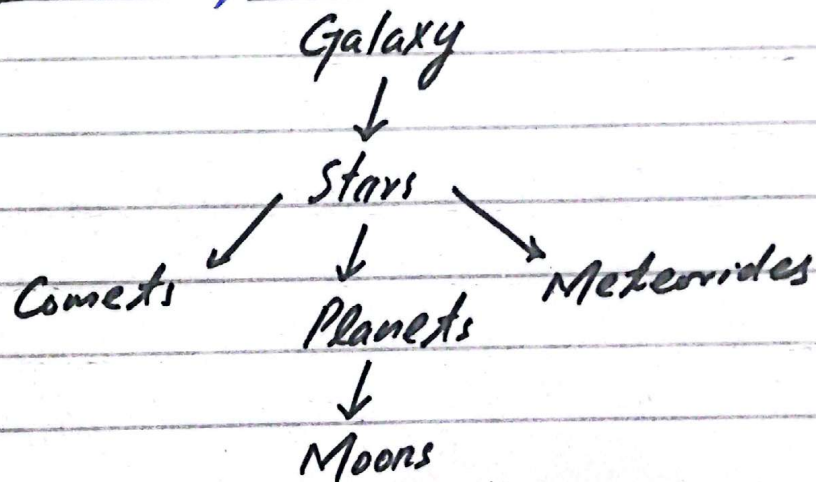
As celestial bodies are moving in the universe, and when they come close and strike against each other new galaxies comes into being.

B- Cooling of matter

Cooling of matter and its concentration at a place give birth to a new galaxy.

III - Evolution of Galaxies

When a galaxy came into being it gives birth to new stars. The stars are broken down into planets, and other celestial bodies. As a result a complete system come into being.



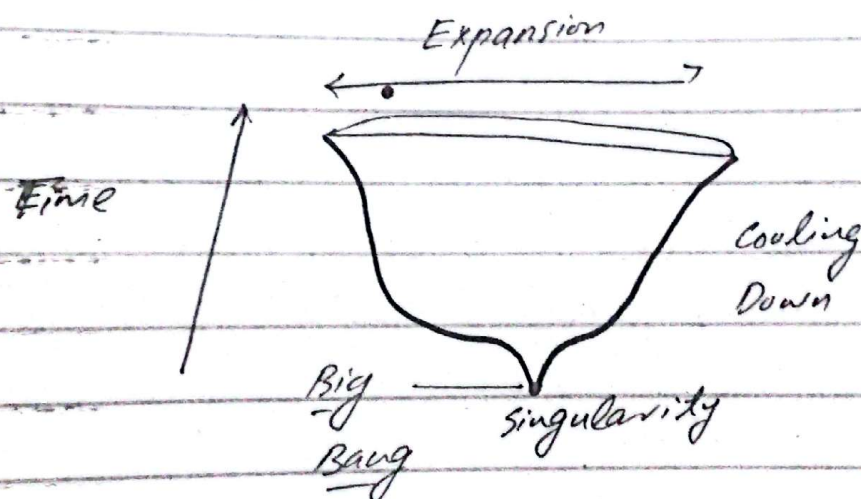
Evolution of galaxies

Ans d) Introduction: Big Bang Theory and its evidences

Big Bang theory is the most logical and globally recognized theory about the origin of the universe. The theory says that the universe came into being as a result of a big bang.

II - Claim of the Theory

Big bang theory claims that the universe is came up of a single bubble which is denser and hotter than anything man can imagine in the result of a big bang and started expanding after creation of universe.



III - Evidences of Big Bang

A - Cosmic microwave background

Coming of cosmic microwave background from all sides shows that a big bang happened in the past.

B - Red shift and blue shift :

Phenomena of red shift and blue shift provide the evidence that the universe is expanding as per the claim of the big bang theory.

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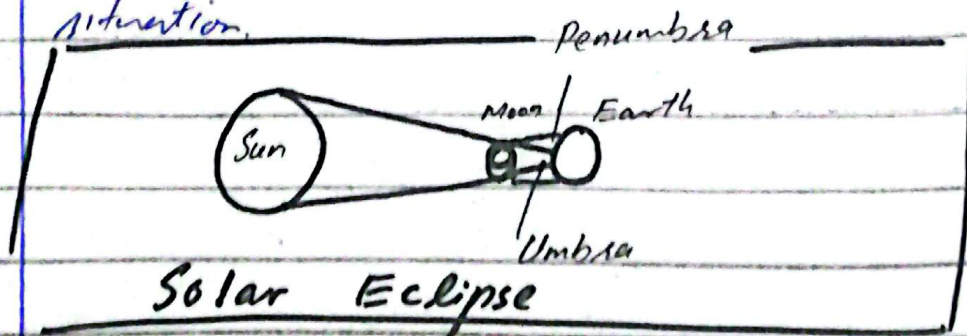
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Ans a) I. Introduction: Solar and Lunar Eclipses

Solar and lunar eclipses are the phenomenon in the world when a body moves under the shadow of another.

II. Solar eclipse

When moon casts its shadow on the earth by blocking sunlight, the phenomenon is called solar eclipse. All bodies Sun, moon, and Earth are in the same line in this situation.



Types of Solar eclipse

A. Total Solar eclipse:

When moon blocks all the light of sun, the eclipse is called total solar eclipse.

B. Partial Solar eclipse:

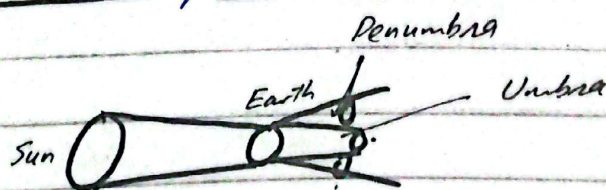
When Earth revolves around just under a partial shadow of moon, the phenomenon is called partial solar eclipse.

C. Annular Solar Eclipse:

When the moon look shorter than its size, the eclipse is called annular solar eclipse.

III. Lunar Eclipse:

When the moon moves under the shadow of the Earth, the phenomenon is called lunar eclipse.



Lunar Eclipse

Types of Lunar Eclipse

i- Penumbral Lunar Eclipse

When moon moves under the penumbral shadow, it is called penumbral lunar eclipse.

ii- Partial Lunar Eclipse:

When just a partial shadow of Earth falls on the moon, the eclipse is called partial lunar eclipse.

iii- Umbral Lunar Eclipse

When the Earth casts its complete shadow on the moon, the eclipse is called umbral lunar eclipse.

X ————— X ————— X