

Ch - 7

Volcanoes

Volcano - A volcano is a vent or an opening in the earth's crust from which hot molten material erupts from the earth's interior.

Causes of Volcanic Eruptions -

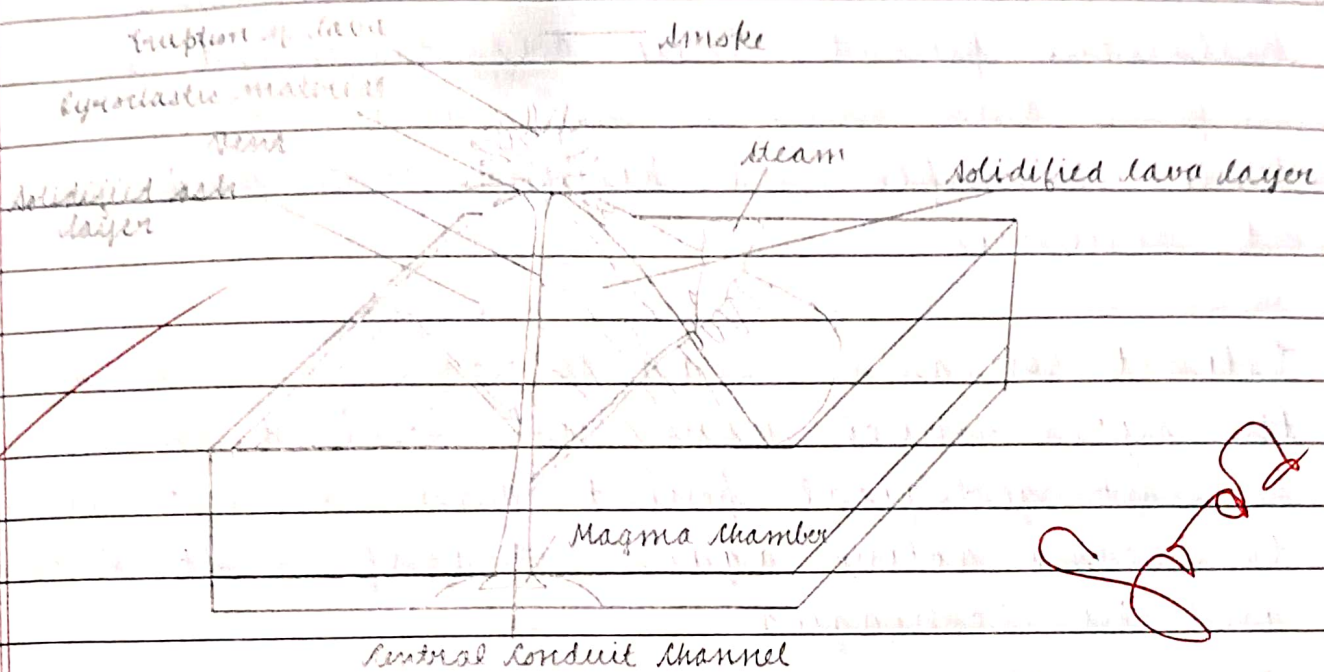
- i) Heat and pressure inside the earth
- ii) Plate tectonics
- iii) Magma chamber

Products of a Volcano -

- i) Magma and lava - The molten material inside the earth is called magma when it reaches the earth's surface it is known as lava.
- ii) Steam and gases - Steam is the most abundant gas that comes out of a volcano which may form clouds and result in rainfall. Other gases are hydrogen sulphide, sulphur dioxide, carbon dioxide and hydrogen.
- iii) Solid material -
 - i) The solid rock fragments erupting from / through volcano are known as pyroclasts.
 - ii) The finest particles are called dust.
 - iii) The small stone-sized particles are called lapilli.

iv) Violent eruptions ejecting more material are called bombs.

Structure of a Volcano -



Vent - A vent is an opening in the earth's crust through which lava flows. It is usually like a circular pipe.

Volcanic cone - The accumulation of material around the vent gives to the volcano its typical cone-like shape known as a volcanic cone.

Types of Volcanoes -

On the basis of frequency of eruption there are three main types of volcanoes.

i) Active Volcano - The volcanoes which are presently in active state and have erupted in the recent past are called active volcanoes. A few of these

are in a state of permanent eruption.

Example - Mt. Stromboli, Mt. Etna.

ii) Dormant Volcano (Sleeping Volcano) - These volcanoes have not erupted in recent historical period. They are regarded as sleeping and may become active at any time. Example - Mt. Kilimanjaro and Mt. Vesuvius.

iii) Extinct Volcano (Dead Volcano) - These are the types which have not erupted in the present geological period and are not likely to become active again. Example - Mt. Kenya and Mt. Aconcagua.

Effects of Volcanoes -

Constructive Effects :

Landforms - Numerous types of landforms are created due to cooling and solidification of the molten lava on the earth's surface called extrusive landforms. They include -

a) Volcanic Plateaus - They are formed when dense lava flows out from a crack in the earth's crust and spreads in a large area with repeated eruptions it forms a volcanic plateau. Example - Plateau of Peninsular India.

- b) Volcanic Mountains - The accumulation of erupted viscous material from the vent starts cooling and solidifying, becoming higher after every eruption forms a volcanic mountain. Example - Mt. Mauna Loa in Hawaii Islands.
- c) Volcanic Plains - These plains are formed by extensive volcanic flooding from the volcanic centres. Example - The Western Victorian Plains in Australia.
- d) Caldera Lake - During repeated eruptions the summit of a huge depression which volcano may be blown up to create a huge depression which eventually gets filled with water forming caldera lake. A caldera may also be formed when magma chamber is no longer able to emit sufficient magma and results in the collapse of cone.
- e) Hot Springs - The movement of magma in the interior of the earth heats up underground water particularly around magma chambers. When water turns into steam it gushes up to the surface. Hot springs, also known as Thermal Springs, contain many dissolved minerals. They are considered good for health specially for curing certain skin diseases. Sulphur hot springs at Manikaran in Kullu valley of Himachal Pradesh are a great tourist attraction.

f) Geysers - A geyser is a fountain of hot water and steam that escapes when underground water comes into contact with hot volcanic rocks. Example - 'Old Faithful' in Yellowstone National Park.

Other constructive effects of volcanoes are -

- a) Lava breaks down to provide valuable nutrients for the soil.
- b) Places that have volcanic activity have higher potential for generating geothermal energy.

Destructive effects -

- i) When the volcanoes erupt they destroy life and property. Not only human beings, but also animals as well as plants.
- ii) Volcanic ash and dust makes agricultural fields unsuitable for cultivation.
- iii) They emit poisonous gases which pollute the environment and cause health problems.

Important Volcanic Zones of the World -

Circum Pacific Belt - The Circum Pacific Belt all along the coast of Pacific Ocean called the Pacific Ring of Fire because over 80% of the total number of active volcanoes

are concentrated in this region.

Midworld Mountain Belt - It stretches from eastern Europe covering Alpine - Himalayan ranges in Europe and Asia. About 20% of all volcanoes occur in this zone.