Class-IX

GEOGRAPHY, Chapter:-7

A. Answer the following questions:-

1. What are volcanoes?

Ans.1 A volcano is a vent or opening in the crust of the earth, connected by a conduit to an underlying magma chamber from which molten lava, volcanic gases and steam are ejected. It is usually in the form of a cone or dome according to the material ejected.

2. How are volcanoes caused?

Ans.2 The volcanic eruptions are closely associated with seafloor spreading, plate tectonics and mountain building process. Volcanoes happen when magma rises to the surface of the earth, which causes bubbles of gas to appear in it. This gas can cause pressure to build up in the mountain, and it eventually explodes. When the magma bursts out of the earth, it is called lava.

3. How can volcanoes be classified on the basis of their activity?

Ans.3 Volcanoes are classified as active, dormant, or extinct. Active volcanoes have a recent history of eruptions; they are likely to erupt again. Dormant volcanoes have not erupted for a very long time but may erupt at a future time. Extinct volcanoes are not expected to erupt in the future.

4. Name the four major types of volcanic eruptions.

Ans.4 Different types of volcanoes erupt in different ways. Geologists usually group volcanoes into four main types: cinder cones, composite volcanoes, shield volcanoes, and lava domes.

5. What is volcanicity?

Ans.5 Volcanicity is a process which involves the intrusion of magma in the Earth's crust or the extrusion of such molten material on the Earth's surface. This process gives rise to volcanic eruptions.

6. What are the products of volcanic eruption?

Ans.6 The ash, cinders, hot fragments, and bombs thrown out in these explosions are the major products observed in volcanic eruptions around the world.

Geysers and springs, which are formed due to volcanic activity are useful from health point of view. Crater lakes serve as a great source of perennial rivers.

7. What is a crater?

Ans.7 Crater:-A large bowl-shaped cavity in the ground or on a celestial object, typically one caused by an explosion or the impact of a meteorite.

8. Name any four major types of landforms associated with volcanoes.

Ans.8 Volcanic eruptions pull materials up from deep within the earth to form various volcanic landforms, such as lava domes, lava plateaus, fissure eruptions, craters and calderas.

9. State three beneficial effects of volcanoes.

Ans.9 i. Volcanic materials produce fertile soils. Ash and cinder are natural fertilizers as

they are rich in minerals.

ii. Volcanoes are also important tourist attractions. In Iceland, geysers and hot springs caused by volcanic activity bring many tourists to the island.

iii. All precious stones are found within volcanoes, for example, diamonds in South Africa and nickel deposits of Sudbury in Canada.

10. Mention three adverse effects of volcanoes.

Ans.10 Three adverse effects of volcanoes are:-

i. Tsunami or a tidal wave is produced as a result of volcanic eruption.

ii. Most of the latest volcanic areas are absolutely barren and inhabitable by man.

iii. Volcanic eruptions often force people living near volcanoes to abandon their land houses, sometimes forever.

11. Describe the distribution of volcanoes.

Ans.11 The distribution of Volcanoes is divided as following:-

i. The Circum-Pacific Belt (Ring of Fire):- This is the most important belt of volcanoes and is also called 'Ring of Fire'. It extends through the Andes of South America, Central America, Mexico, the mountains of Western U.S.A, the Aleutian Islands, Kamchatka, the Kurile Islands, Sakhalin, Japan, Philippines, Celebes, New Guinea, the Solomon Islands, New Caledonia and New Zealand.

ii. Mid-Atlantic Belt:-This belt includes the volcanoes of Mid-Atlantic ridge. Most of the volcanoes of this belt are of fissure-eruption type. It also includes the volcanoes of Lesser Antilles, Southern Antilles, Azores, St. Helena, etc.

iii. Mid-Continental Belt:- This belt includes volcanoes of Alps mountains, Mediterranean Sea (Stromboli, Vesuvius, Etna etc.), volcanoes of Aegean Sea, Mt. Ararat (Turkey), Elbrus, Hindukush and the Himalayas.

12. Explain in brief, how a volcanic eruption is caused?

Ans.12 Volcanoes erupt when molten rock called magma rises to the surface. Magma is formed when the earth's mantle melts. Melting may happen where tectonic plates are pulling apart or where one plate is pushed down under another. Magma is lighter than rock so rises towards the Earth's surface.

Sixty percent of all active volcanoes occur at the boundaries between tectonic plates. Most volcanoes are found along a belt, called the “Ring of Fire” that encircles the Pacific Ocean. Some volcanoes, like those that form the Hawaiian Islands, occur in the interior of plates at areas called “hot spots.”

13. Classify volcanoes on the basis of their intensity of eruption.

Ans.13 Volcanoes can be classified on the basis of their intensity of eruption into:-

a. Active volcanoes:-Volcanoes, which constantly eject lava, gases, ashes, cinder, pumice etc. are known as active volcanoes. There are several hundred active volcanoes in the world. Most of them are in the Pacific Ocean and Atlantic Islands.

b. Dormant Volcanoes:-A volcano which although not extinct, has not been known to erupt within historic time is known as dormant volcano. The Vesuvius volcano is one of the best examples of a dormant volcano.

c. Extinct Volcanoes:-A volcano that erupted in the distant geological past and the remains of which occur in an area where there is no longer any active Volcanicity is known as extinct volcano.

14. Where do volcanic eruptions generally occur? Give one example.

Ans.14 Sixty percent of all active volcanoes occur at the boundaries between tectonic plates. Most volcanoes are found along a belt, called the “Ring of Fire” that encircles the Pacific Ocean. Some volcanoes, like those that form the Hawaiian Islands, occur in the interior of plates at areas called “hot spots.”

15. Give one example of an active volcano.

Ans.15 Stromboli (Philippines) is the example of active volcano. The Stromboli volcano emit so much fire that it has come to be known as the lighthouse of the Mediterranean Sea.

B. Explain the following terms:-

1. **Caldera:-**A caldera is a large depression formed when a volcano erupts and collapses. During a volcanic eruption, magma present in the magma chamber underneath the volcano is expelled, often forcefully. When the magma chamber empties, the support that the magma had provided inside the chamber disappears.

2. **Ring of Fire:-**The Ring of Fire is a major area in the basin of the Pacific Ocean where many earthquakes and volcanic eruptions occur. In a large 40,000 km horseshoe shape, it is associated

with a nearly continuous series of oceanic trenches, volcanic arcs, and volcanic belts and plate movements. It has 452 volcanoes.

3. **Magma:-**Magma is extremely hot liquid and semi-liquid rock located under Earth's surface. Earth has a layered structure that consists of the inner core, outer core, mantle, and crust. Much of the planet's mantle consists of magma. This magma can push through holes or cracks in the crust, causing a volcanic eruption

4. **Lava:-**Volcanoes often contain molten rock or magma. When a volcano erupts, this molten rock is erupted onto the Earth's surface and forms lava which is liquid. As the lava cools down, the lava becomes solid rock.

C. Distinguish between the following pairs:-

1. Lopoliths and Phacoliths:-When lava solidifies in shallow basins in the shape of a saucer it is called lopoliths.

Phocoloiths are dome shaped and are formed when acid lava solidifies on an anticline or on the base of a syncline.

2. Crater and Caldera:-An abrupt circular depression formed by extrusion of volcanic material, by collapse or by impact of a meteorite.

Caldera is a large, more or less circular depression or basin associated with a volcanic vent. It's diameter is many times greater than that of the included vents. Calderas are believed to result from subsidence or collapse and may or may not be related to explosive eruptions.

3. Active and Extinct Volcano:-An active volcano is a volcano that has had at least one eruption during the past 10,000 years.

An extinct volcano has not had an eruption for at least 10,000 years and is not expected to erupt again in a comparable time scale of the future.

E. Give reasons for the following:-

1. Earthquakes are closely associated with volcanic belts.

Ans. Most earthquakes are along the edges of the tectonic plates. This is where most volcanoes also occur. So most earthquakes are caused by the interaction of the plates not the movement of Magma. Thus earthquakes are closely associated with volcanic belts.

2. Lava activity is profitable to man.

Ans. When lava comes to the surface of the earth, it cools and solidifies. This lava is rich in minerals. Thus, lava activity is profitable for humans.

3. The Circum-Pacific Belt is also called the “Ring of Fire”.

Ans. The circum pacific belt is known as the ring of fire because lava is very hot like fire and volcanoes erupt lava.

4. Volcanos have constructive effects in favour of man.

Ans. Volcanic eruptions and related processes have directly and indirectly benefited mankind. Volcanic materials ultimately break down and weather to form some of the most fertile soils on Earth, cultivation of which has produced abundant food and fostered civilizations.

5. Mt.Vesuvius in Itally is a dormant volcano.

Ans. Vesuvius is still regarded as an active volcano, although its current activity produces little more than sulfur-rich steam from vents at the bottom and walls of the crater. Vesuvius is a stratovolcano at the convergent boundary where the African Plate is being subducted beneath the Eurasian Plate.