

UNIT – III**2 Marks Questions and Answers****1. Define Seismology. And Earthquake**

Seismology is the study of the generation, propagation generation and recording of elastic waves in the earth and the sources that produce them.

An Earthquake is a sudden tremor or movement of the earth's crust, which originates naturally at or below the surface. About 90% of all earthquakes results from tectonic events, primarily movements on the faults.

2. What are the causes of Earthquake?

Earthquake originates due to various reasons, which may be classified into three categories. Decking waves of seashores, running water descending down waterfalls and movement of heavy vehicles and locomotives, causes feeble tremors. These earthquakes are feeble tremors, which don't have disastrous effects.

Contrary to the volcanic earthquake and those due to superficial causes, which can be severe, only locally, the more disastrous earthquakes affecting extensive region are associated with movements of layers or masses of rocks forming the crust of the earth. Such seismic shocks, which originate due to crustal movements, are termed as tectonic earthquakes.

3. Write a short notes on Plate Tectonic

Tectonic is the study of deformations of earth materials that result from deformation. Plate tectonics refers to deformation on a global scale. The basic hypothesis of plate tectonics is that the surface of the earth consist of a number of large plates. These plates move relative to one another. The present six important plates are namely

1. African plate
2. American plate
3. Antarctic plate
4. Australian – Indian plate

5. Eurasian plate
6. Pacific plate

4. What is mean by Epicenter and focus?

The point at which the rupture begins and the first seismic wave originates is called focus or hypocenter.

The point on the ground directly above the focus is called epicenter.

5. Write a short note on Seismic waves.

Large strain energy released during an earthquake travel as seismic waves in all directions through the earth's layers, reflecting at each interface. These waves are of two types, body waves and surface waves.

6. Write a short note on Magnitude.

The magnitude of an earthquake is a measure of the amount of energy released. The earthquake scale is devised by Charles F. Richter, an American seismologist be based on t he total amount of energy released during an earthquake be called magnitude.

7. Write a note on Intensity.

Intensity indicates the intensity of shaking or extent of damage at a given location due to particular earthquake. Thus the intensity of some earthquake will be different at different places. Intensity is a measure earthquake in qualitative way by judging what actually happens on the ground, the damage to the buildings and other structures caused by earthquake waves.

8. What is mean by seismogram?

A seismogram is the graph output by a seismograph. It is a record of ground motion at a measuring station. The energy measured in a seismogram may result from earthquake or from some other source.

9. What are the P – waves and S – waves?

P – Waves: the material particles undergo tensional and compressional strains along directions of energy transmissions, speed 4.8 km/sec.

S – Waves: it is called shear waves oscillate at right angles to the above. The particle motions can be in any direction in a plane perpendicular to the direction of propagation. Since the liquids have no shearing resistance these waves cannot pass through liquid. Speed 3 km/sec.

10. How the earthquakes are classified?

The earthquakes are classified into different groups based on their size. Annual average number of earthquakes across the Earth in each of these groups is also shown the table given below.

Group	Magnitude	Annual Average Number
Great	8 and higher	1
Major	7 – 7.9	18
Strong	6 – 6.9	120
Moderate	5 – 5.9	800
Light	4 – 4.9	6,200(estimated)
Minor	3 – 3.9	49,000(estimated)
Very Minor	< 3.0	M 2-3: ~1,000/day ; M1-2: ~8,000/day

11. What is the difference between Inter plate earthquakes and Intra plate earthquakes?

Inter plate earthquakes

Most earthquakes in the world occur along the boundaries of the tectonic plates and are called Inter plate earthquakes.

Intra plate earthquakes

A number of earthquakes also occur within the plate itself away from the plate boundaries these are called Intra plate earthquakes.

12. Draw the neat sketches of different types of faults.

In both type of earthquakes (Intra and Inter plate) the slip generated at the fault during earthquakes is along both and vertical direction (called Dip slip) and lateral directions (called Strike slip).

13. Draw the neat sketches on Arrival of Seismic waves at a site.

16 Marks Questions

- 1. Explain briefly the Spectral acceleration.**
- 2. Write a brief notes on “ Information on some disastrous earthquakes”.**
- 3. Explain with neat sketches of seismogram**