

# BHARTIYA INSTITUTE OF ENGINEERING & TECHNOLOGY, SIKAR

## Department of Civil Engineering

### Earthquake Resistant Construction & Design

- Q.1** Describe the plate tectonics theory of earthquake occurrence. Name the six major tectonic plates.
- Q.2** Differentiate Earthquake Magnitude and Earthquake intensity.
- Q.3** Describe different types of Rock Faults.
- Q.4** What is the use of modern Seismograph? Describe its work methodology.
- Q.5** Explain various Seismic waves.
- Q.6** What is Liquefaction? Explain its types and effects.
- Q.7** Differentiate between following: (Any two)
- a) Shallow earthquake & Deep earthquake
  - b) P-waves & S-wave
  - c) Intra plate & Inter plate earthquake.
- Q.8** A five storeyed special RC moment resisting framed building is situated in Shimla on hard soil. The dimension of building is 30 m x 20 m and height of each floor is 3.5 m.
- Q.9** Calculate base shear and distribution of forces on each floor. If
- Weight of slab = 2 kN/m<sup>2</sup>
- Weight of beam = 180 kN
- Weight of columns = 120 kN
- Weight of walls = 250 kN
- Weight of terrace floor is 2000 kN. Assume live load 3 kN/m<sup>2</sup>.
- Q.10** "Regular and symmetrical plan & elevation of a building are preferred for earthquake resistant construction" why? Explain in detail.
- Q.11** Describe the importance of following in RC Construction: -
- a) Weak beam and strong column analogy
  - b) Ductile Detailing
  - c) Soft Storey
  - d) Shear walls
  - e) Stiffness irregularity
- Q.12** With the help of neat schematic diagrams describe the typical seismic behaviour of unreinforced masonry buildings.
- Q.13** Short notes: -
- a) Static and dynamic analysis
  - b) P-waves and S-waves
  - a) Seismograph
  - b) Seismogram
  - c) Base isolation
  - d) In plane failure
  - e) Out of plane failure