STR 14 B

Roll No.										

M.Tech.(Structural Engineering)
INTRODUCTION TO EARTHQUAKE ENGINEERING
(SEMESTER- I) EXAMINATION, 2015-16

Time: 3 Hours **Total Marks: 100**

Note: **(i)** Attempt ALL questions.
(ii) Marks are indicated against each question.
(iii) Assume any data suitably, if required.
(iv) Answers should be to the point & Supported byleveled sketches.

1. Attempt any **TWO** parts of the following **10x2=20**

(a) Explain the Theory of Plate Tectonics and explain with neat diagrams how the Earthquake is triggered below the earth surface. What are the different waves produced after an earthquake is triggered and how structures are damaged by an earthquake?

(b) Discuss about Magnitude and Intensity of anearthquake? Explain how each of them is measured.

(c) Discuss the Seismicity of India and explain the Seismic Zone Map of India. Explain with justification why India is venerable from earthquake hazards.

2. Attempt any **TWO** parts of the following **10x2=20**

(a) What do you understand by the Strong Motion Characteristics of earthquake? What is a Response Spectrum of an earthquake. Discuss the different types of response spectra drawn for an earthquake response and how Design spectrum is constructed for design.

(b) Explain with examples, the four virtues of Earthquake Resistant Design .

(c) Discuss the Capacity Design Concept of Earthquake Resistant Design for the design of structures.

3. Attempt any **TWO** parts of the following **10x2=20**

(a) Explain the Seismic Coefficient Method to calculate and

distribute lateral earthquake forces on a structure,

(b) What do you understand by Earthquake proof Design and Earthquake resistant design?What are the objectives of Earthquake Resistant Design of structures? Explain each one of them.

(c) Discuss the various vertical and plan irregularities of structures on the earthquake resistant performance with their possible remedial measures recommended by IS codes.

4. Attempt any **TWO** parts of the following **10x2=20**

(a) Discuss the various damages caused in Brick Masonry structures during earthquakes .

(b) Discuss the codal provisions recommended for earthquake safety for Masonry buildings in Zone III, IV and V..

(c) Explain the measures to ensure ductile behavior in Brick masonry buildings during the earthquakes.

5. Attempt any **TWO** parts of the following **10x2=20**

(a) Discuss with neat sketches the behavior of R.C.C framed structures during earthquakes and causes of failures at critical sections.

(b) Explain codal provisions recommended to overcome the damages in R.C.C framed structures w.r.t failures in slabs, beams, columns & Footings

(c) What are Shear walls? Discuss theLocation, Behavior &objectives of providing shear walls in Framed structures. Show the typical details of reinforcement in a R.C.C shear wall.