

BACHELOR OF ARCHITECTURE (B.Arch.)

Term-End Examination

00192

December, 2017

**BARE-073 : EARTHQUAKE RESISTANT
STRUCTURES (ELECTIVE 1)**

Time : 3 hours

Maximum Marks : 70

Note : Answer any *five* questions.

1. Explain the differences between 'Primary' and 'Secondary' Seismic Waves. Provide a sketch of the interior of the earth and show how these waves move in the inside of the earth. 14

2. (a) Define Plate Tectonics. How are they considered to be a reason for earthquakes? 7
(b) Define 'Focus' and 'Epicentre' of an earthquake with a neat sketch. 7

3. Write some precautions to be taken, in the construction of stone masonry buildings, for earthquake safety. Provide neat sketches. 14

4. (a) What do you understand by a Single Degree of Freedom system ? Draw the shape of such a model with its equation of motion. 7
- (b) Explain the concept of Base Isolation in buildings. 7
5. (a) Explain some possible failures of non-structural components in buildings in earthquakes. 7
- (b) Explain the concept of a seismic zone briefly. 7
6. (a) Discuss how earthquake load is considered and calculated for an RC framed building. Provide the calculation of base shear force in this regard. 7
- (b) What do you understand by 'Response Reduction Factor' ? Explain briefly. 7
7. Write short notes on any *two* of the following topics : $2 \times 7 = 14$
- (a) Effect of Earthquake Duration on Losses
- (b) Intensity of Earthquake
- (c) Brittle and Flexible Structural Components in Buildings
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