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Total Number of Pages : 01

M.TECH

AR-19

M.TECH 1ST SEMESTER EXAMINATIONS NOV/DEC 2019

SE, MPESE1051

EARTHQUAKE RESISTANT DESIGN OF STRUCTURES

Time: 3 Hours

Max Marks : 70

The figures in the right hand margin indicate marks.

PART-A

(10 X 2=20 MARKS)

1. Answer the following questions.

- (a) Outline about body waves and surface waves.
- (b) List the types of faults.
- (c) Define response spectra.
- (d) Explain the term storey drift.
- (e) Compare and contrast focus and epicenter.
- (f) Formulate simple Harmonic motion
- (g) Discuss the types of damping
- (h) List the factors to be considered for design of a tall building.
- (i) Define web Reinforcement.
- (j) Derive the expression for base shear

PART-B

(5 X 10=50 MARKS)

Answer any five questions from the following.

2.
 - (a) Describe plate tectonic theory with a neat sketch.
 - (b) Explain the types of geological faults
3.
 - (a) Describe in detail about the concept of base isolation.
 - (b) Define faults? And Show how they are associated with earthquake.
4.
 - (a) A Reinforced concrete frame consists of beams having spans of 6m c/c. Atypical floor inner beam carries a negative bending moment of 450 kN-m and a shear of 325kN at the face of beam column joint due to gravity and earthquake loads. Design the beam solution for ductility.
 - (b) Draw its reinforcement details.
5.
 - (a) Write a step by step procedure to analyze a frame by equivalent static lateral load method.
 - (b) Discuss about the vertical irregularities that affect the performance of RC buildings during earthquake.
6.
 - (a) How to improve the seismic capacity of masonry building?
 - (b) Distinguish between rigid and flexible diaphragm with neat sketches
7.
 - (a) Prepare a case study on effects of earthquake on masonry buildings due to Bhuj earthquake.
 - (b) Describe how core wall resists shear in high rise RC building.
8. Write Short notes on
 - (a) Retrofitting
 - (b) Shear wall