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M.TECH

Total Number of Pages :1

M.TECH 1ST SEMESTER SUPPLE EXAMINATIONS, DECEMBER 2018
EARTHQUAKE RESISTANT DESIGN STRUCTURE

Branch: SE, Subject Code:MSEPE1051

(Regulations 2017)

Time: 3 Hours

Max Marks : 70

Question Code: SD18002083

PART-A (10 X 2=20 Marks)

1. Answer the following questions.

- What is an earthquake, and how does it effect buildings?.
- What do you mean by plate tectonics?
- Define the term magnitude of earthquake?
- What do you mean by seismograph?
- Distinguish between Rayleigh and Love Waves.
- What are the assumptions considered for accumulation of stresses inside the earth?
- Why the member shall preferably have a width to depth ratio of more than 0.30?
- Why steel reinforcements of grade Fe415 or less shall be used?
- Define Ductile failure?
- What are the aspects of Earthquake engineering?

PART-B (5 X 10=50 Marks)

Answer any five questions from the following.

- Discuss the factors required for assessing the lateral design forces. [5]
 - Discuss various measures of an earthquake. [5]
- Plan of a five storey building is shown as below. Dead load including self weight of slab, finishes, partitions, etc can be assumed as 5 KN/m^2 and live load as 4 KN/m^2 on each floor and as 1.5 KN/m^2 on the roof. Determine the lateral forces and shears at different storey levels. Assume $z=0.24$, $I=1$, $R=5$, Soil type = 2, storey height = 3.5 m. [5]

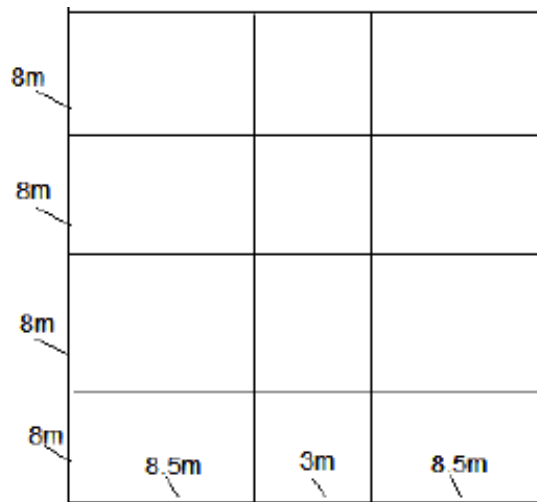


Figure Q1: Plan

- List the concerns with regards to joints in RCC frames [5]



4. (a) Discuss the four virtues of Earthquake Resistant Buildings. [5]
(b) What do you mean by Isoseimals? What are the factors considered to control the outline of Isoseimals? [5]
5. (a) Explain how seismic structural configuration affects the performance of buildings? [5]
(b) Discuss about hysteresis behavior of reinforcing steel. [5]
6. (a) Discuss on accelerograph. [5]
(b) How the design force is distributed to resist the earthquake for the building? [5]
7. (a) Discuss the failure of joints of beam column due to earthquake. [5]
(b) In what ways do stirrups help RCC beams? [5]
8. Write Short notes on [5]
(a) seismic coefficient method [5]
(b) Zone factor [5]

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