

Civil Engineering Department

Guru Nanak Dev Engineering College, Ludhiana

M.Tech 2nd year

MTST-610 Earthquake Resistant Design of Masonry and RC Buildings

Date: Thu 17 Sep 15 1st House Test Time: 02:30 p.m. to 04:00 p.m. Max. Marks 30

Don't write anything on question paper except your Roll No. _____

- 1(a) What are the reasons of Earthquakes. 4
- 1(b) What are various types of Seismic Waves, and how these affect the buildings? 6
- 2 What is the use of Seismic Zoning Map? What parameters are considered in developing of these maps. Discuss evolution of Seismic Map of India. 10
- 3 (a) What is the seismic design philosophy? Explain the procedure to find Base Shear Force due to Earthquake. How Base Shear Force is distributed along the height of building. 10
- or
- 3 (b) Find Seismic Force Distribution by Static Analysis Method for a four-storey reinforced concrete office building, in seismic zone V. The soil conditions are medium stiff and the entire building is supported on a raft foundation. The R. C. frames are infilled with brick-masonry. The lumped weight due to dead loads is 12 kN/m^2 on floors and 10 kN/m^2 on the roof. The floors are to cater for a live load of 4 kN/m^2 on floors and 1.5 kN/m^2 on the roof. Building has 4 bays in X – direction and 3 bays in Y – direction. Span of each bay in both directions is 5 m. Height of Ground Floor is 4.2 m and other three floors are 3.2 m height each. 10

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