

M.Tech. Structural Engineering & Construction CBCS Pattern Semester-III
PSES31 - Design of Earthquake Resisting RCC Structures

P. Pages : 1

Time : Four Hours



GUG/W/23/11059

Max. Marks : 70

- Notes :
1. All questions carry equal marks.
 2. Answer **any five** questions.
 3. Assume suitable data wherever necessary.
 4. I.S.I. Hand Book for structural steel section, I.S. Code 8000/1962 or 1964, I.S. 456 (Revised), I.S. 875 may be consulted.

1. Explain the calculations of the base shear due to earthquake forces using response spectrum method. **14**
2. a) Explain with neat sketch the effect of torsion on multi-storey building. **7**
b) Explain the soil structure interaction. **7**
3. Design a rigid beam - column Joint for $V=150\text{kN}$ $M = 400 \text{ kN-m}$ $P = 100\text{kN}$ use M_{20} concrete & Fe415 steel. **14**
4. a) Explain performance of RC building. **7**
b) Explain P-delta effect. **7**
5. Design the shear wall of length 4m & thickness 300mm subjected to forces as below $f_{ck} = 25 \text{ MPa}$ & Fe415 MPa. **14**

Load	P (kN)	M (kN.m)	V(kN)
DL+LL	1500	400	75
Seismic	200	2500	500

6. Write short note on:
a) Seismic design of floor diaphragm. **7**
b) Fire resistant of RC building. **7**
7. Explain the philosophy & concept of earthquake resistance design of structure. **14**
