M.Tech. Structural Engineering & Construction (CBCS Pattern) Semester-III

PSES31 - Design of Earthquake Resisting RCC Structures

P. Pages : 1 **GUG/W/24/11059**

Time : Four Hours * 4 2 0 3 * Max. Marks : 70

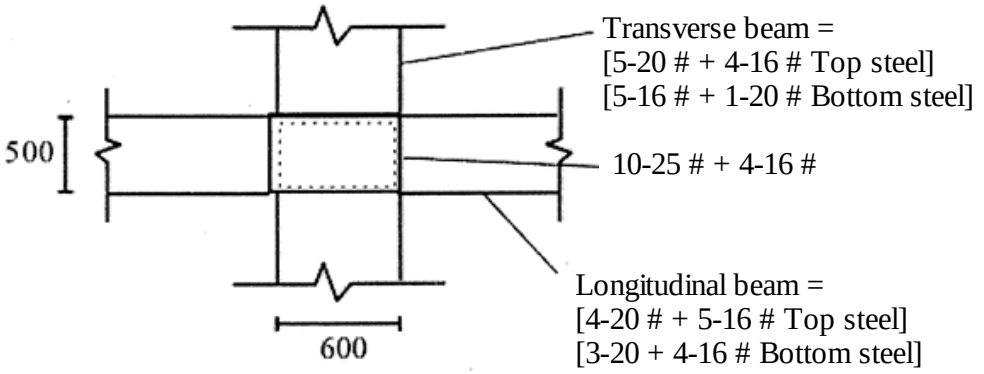
Notes : 1. All questions carry equal marks.
2. Due credit will be given to neatness and adequate dimensions.
3. Assume suitable data wherever necessary.
4. I.S. Hand Book for structural steel section, I.S. Code 8000/1962 or 1964, I.S. 456 (Revised), I.S. 875 may be consulted.
5. Solve **any five.**

1. Explain the calculations of the base shear due to earthquake forces using response spectrum method. **14**

2. a) Write the effect of infilled walls in RCC building. **7**

b) Explain performance of RC building. **7**

3. Check if beam column joint of figure satisfy the weak beam strong column proportion were span of left beam is 5m and right beam is 4m the slab thickness is 120mm. Hogging and Sagging moment live load = 2 2kN/m capacity for longitudinal story height = 3m, beam = 288 kN-m and 221 kN-m for Transverse beam = 377 kN-m and 246 kN-m reinforcement detail is given in figure. **14**



4. a) Explain P-delta effect. **7**

b) Explain the soil – structure interaction on building under earthquake. **7**

5. Design the shear wall of length 4m and thickness 300mm subjected to forces as below: **14**

$f_{ck} = 25\,MPa$

$f_y = 415\,MPa$

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

6. a) Explain the factors affecting the fire resistance of RCC members. **7**

b) Write a short note on Seismic design of floor diaphragm. **7**

7. Explain the philosophy & concept of earthquake resistance design of structure. **14**

****