

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
M.Tech. Winter 2018 - 19 Examination

Semester: 2
Subject Code: 03209182
Subject Name: Design of Disaster Resistant Structures

Date: 14/12/2018
Time: 2:00 pm to 4:30 pm
Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.
5. Use of IS-1893 and IS-13920 is permitted.

- Q.1** A) Explain strong column-weak Beam Design concept. (05)
B) Write short note on response spectrum analysis. (05)
C) Write a note on beam column joint as per codal provisions. (05)
- Q.2** Answer the following questions. (Attempt any three) (Each five mark) (15)
A) Explain the concept of blast resistant design.
B) Explain the effects of flood, wind and fire disasters to structures as per codal provisions.
C) Write note on short column effect.
D) Explain Influence of building configuration in seismic resistance.
- Q.3** A) What are the structural systems used for seismic resistance design? (07)
B) Explain Earthquake Resistant Design Philosophy. Also explain four virtues of earthquake resistant design. (08)

OR

- B)** A five storeyed building has size of 30m x 30m. It is located in Bhuj and resting on hard soil. The weights of floors and height of the floors are 2000kN, 2500kN, 2500kN, 2500kN and 2100kN and 4.5m, 3.5m, 3.5m, 3.5m and 3.5m respectively from slab no. 1 from bottom. Assuming the building as special moment resisting office building, calculate the horizontal shear forces acting at the each slab level by seismic coefficient method. (08)
- Q.4** A) Explain ductile detailing of column as per IS 13920. (07)

OR

- A)** Draw and detail the typical qualitative reinforcement detailing of two span reinforced concrete continuous rectangular beam of dimension 230mm X 500mm as per IS 13920(ductile detailing provision). (07)
- B)** Explain Base Isolation Techniques in detail. (08)