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Total No. of Pages : 02

Total No. of Questions : 08

M.Tech. (Structural Design) (2016 & Onwards) (Sem.-1)

DESIGN OF HIGH RISE STRUCTURES

Subject Code : MTSD-104

M.Code : 74245

Time : 3 Hrs.

Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.

1. a) Discuss lateral load analysis of tall buildings.
b) On the basis of your personal experience, describe briefly a design of high rise strength project that was significantly influenced by the nature of the soil encountered at the site of the project.
2. What are the different types of IS codes which we use for loads coming on high rise buildings? How seismic load accounted for design of structure? Discuss.
3. A building frame has 3 equal bays of 4m and there storeys each having height 3m. The column of 1st storey are fixed at their bases. For each girder the dead load is 30 kN/m and live load 22 kN/m. Using Approx method of analysis, determine:
 - a) The maximum girder shear.
 - b) The maximum positive girder moment.
 - c) The maximum exterior column compression.
 - d) The maximum negative girder moment.
4. Differentiate between analysis of floor system in tall buildings and in low rise buildings. Discuss the use of vierendal girders.
5. Design a rectangular core shear wall $4\text{m} \times 8\text{m} \times 0.2\text{m}$, if it is subjected to the following:
Moment in X- direction = 900kNm
Moment in Y-direction = 400kNm
Axial Load = 7000kN
Use M20 & Fe 500.

6.
 - a) Discuss in detail plastic stability of frames and shear walls.
 - b) Differentiate between analysis of high rise buildings & low rise buildings.
7. Write short notes on :
 - a) Gravity loads settlement of foundation
 - b) Bending & perforated cores
 - c) Diagrid floors
8.
 - a) What are infilled frames & coupled frames? Discuss.
 - b) What are the main requirements for structural safety of masonry buildings during seismic analysis?

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.