

Roll No.

23432

**M. E./M. Tech. 2nd Semester (Civil Engg.)
Examination – June, 2023**

HIGH RISE STRUCTURES

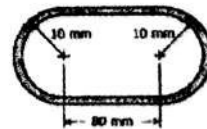
Paper : CE-660

Time : Three hours] [Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt five questions. All questions carry equal marks.

1. (a) What are shear wall buildings ? Discuss shear wall-frame interaction. How is load shared by two ? 10
- (b) A tube 2 mm thick has the shape shown in Fig. below. Find the shearing stress caused by a torque of 600 N -m. 10



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2. A building frame has 4 equal bays of 6m and three storeys each having height 3.2 m. The columns of first storey are fixed at their bases. For each girder, the dead load is 30 kN/m live load 25 kN/m. Using approximate method of analysis, determine : 20

- (a) The maximum girder shear.
- (b) The maximum +ve girder moment.
- (c) The maximum exterior column compression.
- (d) The maximum -ve girder moment.

3. (a) On the basis of your personal experience, describe briefly an engineering project that was significantly influenced by the nature of the soil encountered at the site of the project. 10

(b) Explain the member Force Analysis by Portal Method. 10

4. (a) Explain the types of force components developed in the various members of Vierendeel girders subjected to loads at the node points. 10

(b) Discuss perforated core and their behavior in bending. 10

5. (a) Discuss elastic and inelastic stability of shear walls. 10

(b) Discuss principle of three dimensional analysis of tall building. 10

6. (a) Explain methods of live load reductions in tall buildings. 10

(b) Describe Hozler's method for finding frequencies and mode shapes for a vibrating system. 10

7. (a) Explain wind as force on high rise structure. How static wind load is calculated using IS 875 ? 10

(b) Explain the factors affecting growth, height and structural forms of tall buildings. 10

8. Write short notes on : 4 × 5 = 20

(a) Diagrid floors

(b) Analysis of thermal stresses

(c) Multi bay frames

(d) Gravity loads