U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

February / March 2023 Semester End Main Examinations

Programme: B.E. **Semester: VII**
Branch: Civil Engineering **Duration: 3 hrs.**
Course Code: 21CV7PEADR **Max Marks: 100**
Course: Advanced Design of RC Structures **Date: 28.02.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.
3. Draw neat sketches wherever required.

UNIT - I

1 A two-span continuous beam has equal span of 7m. The beam subjected to a dead load of 20 kN/m including self-weight and a live load of 12 kN/m. Plot BMD before and after redistribution of 25%. Also design the section as per IS 456-2000. **20**

UNIT - II

2 Design an interior panel of a flat slab of size 8m x 6m by providing a drop and column head. The live load on the panel including floor finish is 6kN/m^2. Use M25 concrete and Fe 415 steel. Assume the size of the column to be 500mm x 500mm. **20**

OR

3 Design an interior panel of a flat slab of size 7.5m X 7.5m without providing a drop and column head. The live load on the panel including floor finish is 8.0 kN/m^2. Use M20 concrete and Fe500 steel. Assume the size of the column to be 500mm X 500mm. **20**

UNIT - III

4 An RCC grid floor is to be designed to cover a floor area of 16m x 10.5m. The ribs are placed at 2 m c/c along the longer side and 1.75 m c/c along the shorter side. Live load on the floor is 3 kN/m^2 and weight due to finishes is 0.8 kN/m^2. Adopting M20 grade concrete and Fe 415 steel. Design and sketch the detail of reinforcement along the ribs. **20**

UNIT - IV

5 Design a rectangular RC water tank of size 8m x 5m resting on ground for a capacity of 2.5 lakh liters. Design also the side walls of the tank and sketch the reinforcement details. Use M20 concrete and Fe 415 steel. **20**

OR

6 Design a RC intze water tank supported on six columns which is required to store 2 lakh liters of water. **20**

Height of staging above ground level =12m

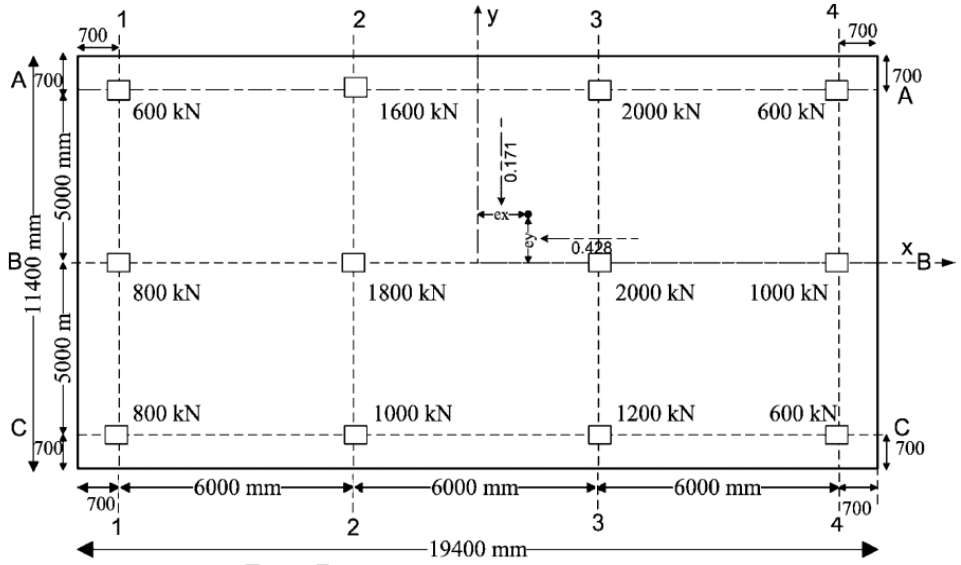
SBC of soil at site = 150kN/m^2

Basic wind pressure = 2kN/m^2

Use M20 grade concrete and Fe415 steel.

UNIT - V

7 Design a slab of raft foundation for the layout of columns shown in figure. All columns are of square shape of size 400mm X 400mm. The SBC of soil is 80 kN/m^2. Use M20 concrete and Fe 415 steel. Assume each column carries a moment of 160kN-m due to wind over its length. **20**



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