

Code: CE6T2

**III B.Tech - II Semester – Regular Examinations – May 2015**

**DESIGN AND DRAWING OF CONCRETE STRUCTURES-II  
(CIVIL ENGINEERING)**

Duration: 3 hours

Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

1. A cantilever of 4 m span is 300 mm wide and 600 mm deep is subjected to a maximum bending moment of 150 kN-m due to uniformly distributed service loads out of which 40% is due to permanent loads. The beam is reinforced with four bars of 20 mm with an effective cover of 50 mm in tensile zone, check the beam for deflection. Use M20 grade concrete and Fe 415 steel. 14 M
2. Explain the design procedure for designing Deep Beams according to Indian Standard code. 14 M
3. Design an interior panel of a Flat slab 6 m x 6 m in size for a super imposed load of 8 kN/ m<sup>2</sup>, provide two way reinforcement. Use M20 concrete and Fe 415 steel. 14 M
4. Explain the design procedure involved in combined beam and slab footing as per I.S codal provisions. 14 M

5. Design a T-shaped cantilever retaining wall to retain earth embankment 3 m high above ground level. The unit weight of earth is  $18 \text{ kN/m}^3$  and the angle of repose is  $30^\circ$ . The embankment is horizontal at the top. The safe bearing capacity of the soil is  $100 \text{ kN/m}^2$ , take coefficient of friction as 0.5. Use M20 concrete and Fe 415 steel. 14 M
6. a) Explain the construction details at beams and column joints. 7 M
- b) What are the different methods and materials involved in controlling deflections? 7 M
7. Explain the importance of Ductility in Seismic design and what are the factors affecting ductility. 14 M
8. Explain the factors which influence the Fire resistance ratings of Reinforced concrete assemblies. 14 M