PVP 14

Code: CE6T1

III B.Tech-II Semester–Regular/Supplementary Examinations–March 2019

DESIGN AND DRAWING OF CONCRETE STRUCTURES – II (CIVIL ENGINEERING)

Note: Use of IS 456-2000 & IS: 1343 - 1980 and IS 1893 (Part-1) - 2002 are allowed

Duration: 3 hours Max. Marks: 70

PART – A

Answer *all* the questions. All questions carry equal marks

11x 2 = 22 M

1. a) Mention different types of footings?
   b) When do you provide combined footing?
   c) Define active and passive earth pressure.
   d) Mention difference between cantilever and counterfort retaining wall.
   e) What are all the components of flat slab?
   f) Write the different types of flat slabs.
   g) List the types of loss in prestress in a pretensioned system.
   h) State any two advantages of prestressed concrete over reinforced concrete.
   i) What is meant by pressure line?
   j) What is load balancing?
   k) Define punching shear.

PART – B

Answer any *THREE* questions. All questions carry equal marks.

3 x 16 = 48 M

2. Design the stem of a cantilever retaining wall to retain an earth embankment 4m high above ground level. The density of earth is 10kN/m^3 and angle of repose is 30 degree. The embankment is horizontal at top. Adopt M20 grade concrete and Fe415 HYSD bars. 16 M

3. Design an interior panel of a flat slab in a hotel carrying a superimposed live load of 3kN/m^2. Weight of floor finishes on the slab may be taken as 2kN/m^2 .The panel is supported on 300 mm diameter circular column. Drops may be provided. The size of panel is 5mx7m.Adopt M20 concrete and Fe415 steel. 16 M

4. Ductility is one of the major attributes for satisfactory performance of a structure during an earthquake. With reference to the same, explain following 16 M
   a) Factors affecting ductility
   b) Computation of ductility in RCC buildings.

5. a) Write a short note on different losses in pretensioning and posttensioning. 8 M

   b) State different types of prestressing with their important features. 8 M

6. The support section of prestressed concrete beam, 100 mm wide by 250 mm deep, is required to support an ultimate shear force of 80 KN. The compressive prestress at the centroidal axis is 5 N/mm^2. The characteristic cube strength of concrete is 40 N/mm^2. The cover to the reinforcement is 50 mm. if the characteristic tensile strength of stirrups is 415 N/mm^2, design suitable shear reinforcement in the section using IS code recommendations. 16 M