

Code: CE6T1

**III B.Tech - II Semester – Regular/Supplementary Examinations
AUGUST 2021**

**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 permitted.**
- **Assume the data required**

Duration: 3 hours

Max. Marks: 70

PART – A

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

11x 2 = 22 M

1.

- a) Mention the types of combined footing.
- b) Mention the various types of Retaining Walls.
- c) Write a brief note on significance of yield line theory in slabs.
- d) What is a flat slab? What is the difference between a flat slab and a grid slab?
- e) Why high grade concrete is used in prestressed system?
- f) Differentiate between prestressed concrete and conventional concrete.
- g) Describe in brief the Hoyer system of prestressing.

- h) Write short note on frictional losses in prestressed concrete.
- i) What is Kern distance? How to calculate lower kern distance?
- j) Write short note on the lever arm concept in design of prestressed concrete beam.
- k) Explain the importance of combined footing.

PART – B

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

3 x 16 = 48 M

- 2. Design a combined footing for two columns spaced at 5 meters. The first column 400mm x 400mm carries a load of 1200kN and the second column 450mm x 450mm carries a load of 1800kN at service state. Safe bearing capacity of soil = 150kN/m². Use M20 grade of Concrete, Fe 415 grade of Steel. 16 M

- 3. Design the interior panel of flat slab for a ware house to suit the following data:
Size of ware house 24m x 24m divided into panels of 6m x 6m and load 5 kN/m², Use M20 concrete and Fe 500 steel bars. 16 M

- 4. Differentiate between pre-tensioned and post-tensioned prestressed beams. 16 M

5. Describe in brief the Freyssinet system of prestressing.

16 M

6. Write step by step procedure for the design of a rectangular prestressed concrete beam.

16 M