Roll No. ..... Total Pages : 03

BT-7/D-19 37044

DESIGN OF CONCRETE STRUCTURE-II

CE-401E

Time : Four Hours] [Maximum Marks : 100

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks. Any missing data may be assumed suitable. Use is IS : 456 and IS : 1343 : 1980 is allowed. Use M20 concrete and FE415 steel if not specified in question.

Unit I

1. What do you understand by pre-stressing ? Classify various pre-stressed member.

2. Design a three span continuous beam having a span of 5 m each. Take dead load and live load on beam as 13 kN/m and 10 kN/m.

Unit II

3. Design a doglegged stair case for an office building in a room measuring 3 m 6 m (clear dimension) floor to height is 3.5 m. A building is public building liable to over crowding stairs are supported on brick wall 230 mm thick at the end of the landing. Use M20 and Fe 415.

4. Design an interior panel 5.0 m × 5.0 m of flat slab for the super imposed load of 17 kN/m^2 including finishes. Use M20 concrete and Fe415 steel.

Unit III

5. Explain the various steps of design of SILO in detail.

6. Design a bunker to store 350 kN of coal. Take unit weight of coal as 8300 N/m^2. Angle of repose is 30°. The stored coal is to be surcharged at its angle of repose. Take permissible stress in steel as 140 N/mm^2.

Unit IV

7. (a) What do you understand by yield line theory ? List out the basic assumption.

   (b) A square slab of size 4 m × 4 m is simply supported all around and carries a service live load of 3 kN/m^2. Design the slab using yield line theory.

8. Compute moment, shear force and axial forces in the members of a two storeyed rigid building frame using cantilever method :