



Reg. No. : .....

Name : .....

**Eighth Semester B.Tech. Degree Examination, October 2014**  
**(2008 Scheme)**  
**08.801 : DESIGN AND DRAWING OF REINFORCED CONCRETE**  
**STRUCTURES (C)**

Time : 4 Hours

Max. Marks : 100

**Instructions :** 1) **Assume** suitable data **wherever** necessary.  
2) **IS 456-2000, IRC 6 & 21, IS 3370, Part I - IV** are **permitted**  
in the examination hall.

PART – A

Answer **all** questions.

- I. a) Explain the “impact effect” on bridges. How is it taken into account in the design of RCC bridges. 5
- b) What is the purpose of providing “Drops” and “Capitals” in flat slab construction. 5
- II. Describe the different types of retaining walls indicating the function and behaviour of each component. 10

PART – B

MODULE – I

- III. a) A comfort retaining wall has the following data.
- i) Height of dry backfill to be retained = 6m.
  - ii) Angle of internal friction of soil =  $30^\circ$ .
  - iii) Unit weight of soil =  $17 \text{ kN/m}^3$ .
  - iv) Safe bearing capacity of soil =  $250 \text{ kN/m}^2$ .
  - v) Coefficient of friction = 0.5.
  - vi) Concrete M - 20 grade, steel - Fe 415 grade.
- Design the vertical wall, heel slab and counter fort. 20
- b) Draw the following views of the above counter fort retaining wall.
- i) Half vertical section through Stem slab showing reinforcement on both faces.
  - ii) Cross section of the retaining wall through counter fort. 20

OR

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- IV. a) Design a circular water tank of height 4 m for a capacity of 5 lakhs liters. The tank is open at the top and is supported on six equally spaced column. Use M-20 concrete and HYSD bars of yield strength 415 MPa. Design the ring beam also. 20
- b) Draw to suitable scale :
- i) The cross section of the tank showing the reinforcement in the ring beam, side wall and bottom slab, and
- ii) The plan showing the base slab reinforcement details. 20

## MODULE – II

- V. a) Design a simple slab bridge to the following requirements
- i) Clear span = 5.5 m
- ii) Clear width of carriage way = 6.8 m
- iii) Live load = class A loading
- iv) Concrete mix, M-20, steel Fe 415 grade. 20
- b) Draw to suitable scale the following views.
- i) Longitudinal section
- ii) Cross section
- iii) Plan showing slab reinforcement. 20

OR

- VI. a) Design the exterior corner panel of a flat slab of size 6m × 6m supported on column of 750 mm diameter storey height is 3.3 m Live load on the slab is 4 kN/m<sup>2</sup>. Use M-20 concrete and Fe 415 grade steel. 20
- b) Draw to scale :
- i) The plan showing the top and bottom reinforcement and
- ii) The cross section through the centre of the slab. 20
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