



Reg. No. : .....

Name : .....

**Eighth Semester B.Tech. Degree Examination, November 2015  
(2008 Scheme)  
08.801 : DESIGN AND DRAWING OF REINFORCED CONCRETE  
STRUCTURES (C)**

Time : 4 Hours

Max. Marks : 100

**Instructions :** Answer *all* questions, use of relevant codes IS.456-2000, IS-3370 (Part I – IV), IRC 6 and 21 and design charts are **permitted**.

**PART – A**

1. Explain the design procedure of a counter fort retaining wall.
2. List the various types of concrete bridges and explain the difference between slab of bridge and T-beam and slab bridge. **(2×10=20 Marks)**

**PART – B**

3. a) Design a cantilever retaining wall to retain earth embankment 4 m high above ground level. The unit weight of soil  $18 \text{ kN/m}^3$  and its angle of repose  $30^\circ$ . The embankment is horizontal at its top. The safe bearing capacity of soil  $150 \text{ kN/m}^2$  and coefficient of friction between soil and concrete as 0.5. Use  $M_{20}$  concrete and Fe 415 grade steel. **20**
- b) Draw to suitable scale the following views (i) vertical cross section of retaining wall (ii) Longitudinal section through stem. **20**

**OR**

4. a) Design a circular water tank at a height of 9m resting on six columns. The capacity of the tank – 1.0 lakh liters. Use  $M_{25}$  concrete and Fe 415 grade steel. **20**
- b) Draw to a suitable scale the following views (i) vertical section showing reinforcement details (ii) Plan showing reinforcement in the base slab. **20**

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## PART - C

5. a) Design a slab bridge for the following requirements. Clear span 4.5m, clear width of roadway - 7m, live load - class a loading, grade of concrete -  $M_{20}$  grade of steel - Fe-415. Average thickness of wearing coat-80 mm. **20**
- b) Draw to a suitable scale the following views (i) longitudinal section showing reinforcement details (ii) plan showing reinforcement details in the slab. **20**

OR

6. a) Design the interior panel of a flat slab  $5.75 \times 6.75$  m in size for a super imposed line load of  $7 \text{ kN/m}^2$ . Use  $M_{20}$  concrete and Fe 415 grade steel. **20**
- b) Draw to suitable scale the following views (i) cross section through column strip (ii) plan showing top reinforcement in the slab. **20**