

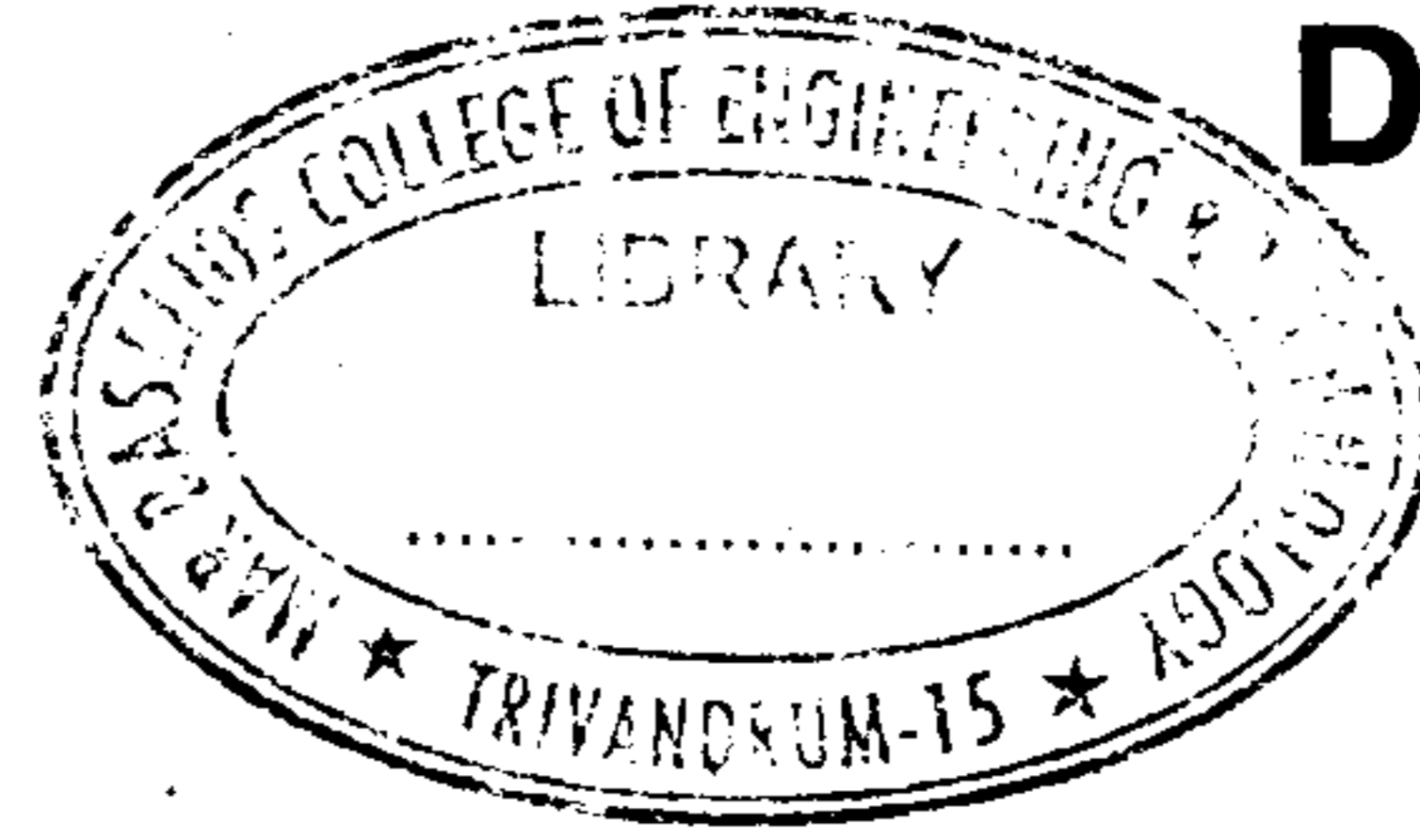


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Reg. No. : .....

Name : .....



**Eighth Semester B.Tech. Degree Examination, December 2017  
(2008 Scheme)**

**08.801 : DESIGN AND DRAWING OF REINFORCED CONCRETE  
STRUCTURES (C)**

Time : 4 Hours

Max. Marks : 100

**Instructions :** Answer all questions. Use of codes IS 456 – 2000, IS 3370 (Part I – IV), IRC 6, IRC 21 and design charts are **permitted**. Assume **any** missing data suitably.

**PART – A**

1. Describe the structural behaviour and design considerations of toe slab, heel slab and vertical stem of a cantilever retaining wall.
2. Explain briefly the principles involved in design of flat slabs using direct design method and equivalent frame method. **(2×10=20 Marks)**

**PART – B**

3. a) Design a suitable counterfort retaining wall to support a level backfill 7 m high above the ground level. Suitable soil for foundation is available at a depth of 1.5 m below the ground level with a safe bearing capacity of 180 kN/m<sup>2</sup>. The backfill of granular soil has a unit weight of 16 kN/m<sup>3</sup> and an angle of shearing resistance of 30°. The coefficient of friction between soil and concrete is 0.5. Use M25 concrete and Fe 415 steel. **20**  
b) Draw to suitable scale.
  - i) Cross section through counterfort.
  - ii) Longitudinal section through stem. **20**

**OR**

4. a) Design a reinforced cement concrete circular water tank for 4 lakh litre capacity, with a spherical dome and resting on the ground. The depth of storage is 3.5 m and freeboard is 0.5 m. Use M25 concrete and Fe 415 steel. **20**

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- b) Draw to suitable scale.
- i) Cross section of tank showing reinforcement details in dome, tank walls and floor slab.
  - ii) Plan of the tank showing reinforcement details. 20

## PART – C

5. a) Design a reinforced cement concrete deck slab for the following data : clear span 6 m, width of the carriage way 7.5 m, width of kerbs 600 mm, thickness of wearing coat 80 mm, width of bearing 400 mm, loading IRC Class A. Use M25 concrete and Fe 415 steel. 20
- b) Draw to suitable scale.
- i) Cross section showing reinforcement.
  - ii) Plan showing reinforcement details. 20

OR

6. a) Design the interior panel of a flat slab supported on columns spaced at 5.5 m in both directions. The size of the column is 500 mm × 500 mm and the imposed load on the panel is 4 kN/m<sup>2</sup>. The height of each floor is 3.5 m. The floor slab is exposed to moderate environment. Assume finish loads of 1 kN/m<sup>2</sup>. Use M20 and Fe 415. 20
- b) Draw to suitable scale.
- i) Cross section through column strip.
  - ii) Plan showing bottom reinforcement details of the slab. 20
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