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B – 3417

Reg. No. : .....

Name : .....

Seventh Semester B.Tech. Degree Examination, December 2016
(2013 Scheme)
13.702 : DESIGN AND DRAWING OF REINFORCED CONCRETE STRUCTURES (C)

Time : 4 Hours

Max. Marks : 150

Instructions : ***Use*** *of relevant codes IS : 456-2000, IS : 3370, IRC 6, IRC 21 and design charts are* ***permitted***.

PART – A

(Answer **all** questions)

1. Briefly write the design procedure of counter fort retaining wall. **20**

2. Discuss different loads to be considered for the design of road bridges and culverts. **20**

PART – B

(Answer **any one full** question from **each** Module)

Module – I

3. a) Design a cantilever retaining wall to retain earth 4 m high above ground level. Consider the backfill to be level. The unit weight of soil is 16 kN/m^3, angle of repose 30°; safe bearing capacity of soil 200 kN/m^2 and coefficient of friction between soil and concrete is 0.5. Use M20 concrete and Fe 415 grade steel. **30**

   b) Draw to a suitable scale :
      i) Vertical section of retaining wall and
      ii) Longitudinal section through stem. **25**

OR

4. a) Design a rectangular water tank with fixed base, resting on ground, for a capacity of 75000 litres. Use M30 concrete and Fe 415 grade steel. **30**

   b) Draw to a suitable scale (i) Vertical section showing reinforcement details and (ii) Plan showing reinforcement in the base slab. **25**

P.T.O.

Module – II

5. a) Design a slab bridge for the following requirements : **30**

Clear span : 4.5 m

Clear width of road way : 7 m

Live load : Class A loading

Average thickness of wearing coat : 80 mm

Use M20 concrete and Fe 415 grade steel.

b) Draw to a suitable scale (i) Longitudinal section showing reinforcement details and (ii) Plan showing reinforcement in the slab. **25**

OR

6. a) Design an interior panel of a flat slab 6 × 6 m in size, with drops, for a super imposed live load of 4 kN/m^2. Use M20 concrete and Fe 415 grade steel. **30**

b) Draw to a suitable scale (i) Cross section through column strip and (ii) Plan showing top reinforcement in the slab. **25**