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Reg.No. :

Name:

Model Question Paper

Seventh Semester B.Tech Degree Examination, November 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 and 21 and design charts are permitted.

PART-A (Answer all questions)

1. Explain different types of retaining walls with neat sketches 20 Marks
2. What are the design principles of prestressed concrete bridges. 20 Marks

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 surface to be inclined at an angle of 15° with the horizontal. The unit weight of soil is 18 kN/m^3 , angle of repose 30° ; safe bearing capacity of soil 150 kN/m^2 and coefficient of friction between soil and concrete is 0.5. Use M20 concrete and Fe 415 grade steel. 30 Marks
Draw to a suitable scale: i) Vertical cross section of retaining wall and 25 Marks
- b) ii) Longitudinal section through stem

OR

- 4.a) Design a circular water tank at a height of 6m resting on six columns. 30 Marks
The capacity of the tank is 1.1×10^5 litres. Use M20 concrete and Fe 415 grade steel.
Draw to a suitable scale: i) Vertical section showing reinforcement 25 Marks
- b) details and ii) Plan showing reinforcement in the base slab

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Module II

- 5.a) Design a slab bridge for the following requirements: 30 Marks
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.
Draw to a suitable scale: i) Longitudinal section showing 25 Marks
- b) reinforcement details and ii) Plan showing reinforcement in the slab.

OR

- 6.a) Design the interior panel of a flat slab 5.5 x 6.25 m in size for a super 30 Marks
imposed live load of 7 kN/m^2 . Use M20 concrete and Fe 415 grade
steel.
Draw to a suitable scale: i) Cross section through column strip and ii) 25 Marks
- b) Plan showing top reinforcement in the slab.