Karunya University

(Karunya Institute of Technology and Sciences)
(Declared as Deemed to be University under Sec.3 of the UGC Act, 1956)

End Semester Examination – April/May 2010

Subject Title:	**REINFORCED CONCRETE STRUCTURES - II**	**Time: 3 hours**
Subject Code:	**CE250**	**Maximum Marks: 100**

Answer ALL questions
PART – A (10 x 1 = 10 MARKS)

1. How is staircase classified based on structural behaviour?
2. Upto what height, a cantilever retaining wall is recommended?
3. What is the minimum percentage of steel in water tank of 100 mm thick wall?
4. Using HYSD bars, what is the maximum value of permissible stress on liquid retaining face for the design of water tanks?
5. Where is IRC class A loading used in the structural design?
6. What is the need for providing cross girders in T beam Slab Bridge?
7. How do you call the portion of a frame, used to simplify the structural analysis?
8. What are the methods used to determine the design earthquake forces?
9. Specify the notation for (i) negative yield line (ii) continuous edge in yield line analysis.
10. How many positive yield lines will be formed in a circular slab?

PART – B (5 x 3 = 15 MARKS)

11. Give some examples of staircase spanning in transverse direction.
12. Draw a neat sketch of INTZE type water tank and locate its parts.
13. Specify the conditions under which Courbon's method of bridge design is suitable.
14. Define ductility. What are the factors that influence ductility of RC members?
15. Specify the characteristic features of yield line.

PART – C (5 x 15 = 75 MARKS)

16. A cantilever retaining wall retains earth 4m high above ground level of density 18 kN/m^3 and angle of repose 30°. The SBC of soil is 200 kN/m^2 and coefficient of friction is 0.5. It is proportioned in such a way that the top width of stem is 200 mm and bottom width 450 mm, Base slab of 3m wide and 450 mm deep is provided at 1.2 m depth below ground level with 1m toe projection. Check the pressure distribution at the base of slab.   Draw the pressure distribution diagram.

(OR)

17. Design a dog legged staircase for a building with vertical distance between floors as 3.6m; the stair hall measures 2.5 m x 5m; Assume live load as 2.5 kN/m^2.

18. Design the side walls of a rectangular RCC water tank of size 6 m x 2m having a maximum depth of 2.5m, using M20 and Fe 415.

(OR)

19. Briefly describe the design concepts of an INTZE type water tank.

20. Design a RCC T beam girder bridge for a roadway of 7.5m, Span = 16 m; Average thickness of wearing coat as 80 mm, for IRC class AA loading, using M25, Fe 415 grade .

(OR)

21. Design RC Slab Bridge for a clear span of 6m using IRC class AA loading.

22. Describe the methods of analysis of frames subjected to horizontal loads.

(OR)

23. With neat sketches, explain the IS recommendations for design of flexural members with earthquake resistance.

24. Derive an expression for the moment of an isotropically reinforced square slab fixed on all edges and subjected to UDL.

(OR)

25. Design a rectangular slab, 6m x 4m, simply supported and subjected to a live load of 4 kN/m^2, with 0.7 as coefficient of orthotrophy, using yield line analysis.