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Total No. of Questions : 18

B.Tech (Civil Engineering) (2012 to 2017) (Sem.–7)

ADVANCED REINFORCED CONCRETE DESIGN

Subject Code : BTCE-808

M.Code : 71867

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Answer briefly :

1. What is the most significant advantage of providing a flat slab?
2. For what purpose folded plates are provided?
3. Which code is used for the design of overhead water tanks?
4. What do you mean by a slab with corner held down?
5. Can retaining wall be constructed to retain a soil full of moisture?
6. Write down the names of stresses present in concrete chimney.
7. What is the maximum spacing of main and secondary reinforcement that you can provide without causing cracking of slabs?
8. What is the significance of overturning moment in retaining walls?
9. For what purpose a temporary open joint is provided in water tank?
10. Define 'Long Shell'.

SECTION-B

11. What are the codal provisions for the design of flat slabs by equivalent frame method?

12. Discuss the yield analysis of slabs.

13. Design a rectangular water tank resting on the ground having size 10m × 5m × 5m. Use M25 concrete and Fe 415 steel.

14. Design a rectangular slab of size 4m × 6m which is simply supported along the edges and has to carry a service live load of 5 KN/m^2. Assume coefficient of orthotropy as 0.75. Use M25 concrete and Fe415 steel. The design may be restricted to bending only.

15. Briefly comment on the analysis of deep beams.

SECTION-C

16. Design the stem and heel of a cantilever retaining wall to retain horizontal earthen embankment of height 5m above the ground level. The earthen backfill is having density of 18 KN/m^3 and angle of internal friction as 25°. The safe bearing capacity of the soil is 160 KN/m^3. The coefficient of friction between soil and concrete is assumed to be 0.45. Use M30 concrete and Fe415 steel.

17. Briefly explain the procedure adopted in the design of chimneys and draw typical cross section showing details of reinforcement (vertical and horizontal).

18. Write short notes on the following :

    a. Structural behavior of cylindrical shell and folded plate.

    b. Codal provisions for shells and folded plates.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.