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Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (CE) (2012 to 2017) (Sem.-6)
DESIGN OF CONCRETE STRUCTURES-II
Subject Code : BTCE-601
M.Code : 71082

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 :**

- Q1. What do you mean by biaxial bending?
- Q2. What are the methods of design of water tanks?
- Q3. List the different types of stairs?
- Q4. In which conditions strap footings are provided?
- Q5. When a shear key is provided in a reinforced concrete retaining wall?
- Q6. List the loads acted on domes.
- Q7. What is the reason of torsion in beam?
- Q8. What is the spacing of lateral ties in an axially loaded column considered?
- Q9. What do you mean by one way and two way shear?
- Q10. What is minimum cover provided in a combined footing?

SECTION-B

- Q11. Explain the method of designing a shear key for a retaining wall.
- Q12. Design a combined column footing with a strap beam for two RC columns $300 \text{ mm} \times 300 \text{ mm}$ size spaced 4 m apart and each supporting a factored axial load of 750 kN. Assume BC of soil as 225 kN/sq.m. Use M20 grade concrete and Fe415 grade steel.
- Q13. Design a circular water tank with flexible base for a capacity of 450 KL. The depth of water is 4.5 m. Allow suitable free board.
- Q14. Design a rectangular beam 300mm wide is subjected to the following at a section. BM is 40KNm, SF is 30KN and torsion moment is 25 KN-m. Design the section and torsion reinforcement for M25 grade of concrete and F_y 250.
- Q15. Design a footing for a rectangular column $230 \times 450 \text{ mm}$, carries an axial load of 1500 kN. The SBC of the soil is 150 kN/m² Use M20 concrete and Fe 415 steel.

SECTION-C

- Q16. A circular girder of a water tank has a mean diameter of 10 m, and it is supported on six symmetrical placed columns. The uniformly distributed load on girder is 20 kN/m. Design the critical sections of the girder using M20 grade concrete and Fe415 grade Tor Steel and sketch the details of reinforcements.
- Q17. A circular beam has to support a circular tank as its bottom ring beam below side wall and it supported by eight symmetrically spaced circular columns of 400mm diameters. The inner diameter of water tank is 9m and height of side walls is 3m. Design the ring beam. Given thickness of base slab is 200 mm. thickness of vertical wall is 250mm. Use M25 concrete Fe250 steel.
- Q18. A staircase of 1.2 m width for an office building consists of each step built into wall with a bearing of 110mm along the flight with tread = 200mm. Design the staircase and sketch layout of reinforcement. Use M20 concrete and Fe 415 steel.

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.