

Roll No.

--	--	--	--	--	--	--	--	--	--	--	--

Total No. of Questions: 09

Total No. of Pages: 02

B.Tech. (CE) (Sem. 6)
DESIGN OF CONCRETE STRUCTURES - II
Subject Code: BTCE-601
Paper ID: A2288

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

1.
 - (a) Name the various types of staircases according to their geometrical classification.
 - (b) What do you mean by biaxial bending?
 - (c) In a circular beam the center of gravity does not coincides with the longitudinal axis of the beam.
State true or false. Also support your answer.
 - (d) Under what circumstances combined footing is preferred?
 - (e) What is the significance of overturning movement in retaining walls?
 - (f) What are the methods of design of water tanks?
 - (g) Which type of reinforcement is provided to counter the hoop stresses in domes?
 - (h) For what purpose a temporary open joint is provided in water tank?
 - (i) How does the slenderness ration effects the design of column?
 - (j) Why does the counter forts are provided in retaining walls?

SECTION B

2. Design a rectangular water tank on the ground having size 10m x 4 m x 5 m. Use M30 concrete and Fe 416 steel.
3. A circular curved beam with a radius of 5 m supported on equally spaced six columns, and carrying a uniformly distributed load of 3KN/m ? {Including its own weight}. Determine the shear force and bending moment distribution.
4. Design a conical dome for hall 12m in diameter. Rise of dome is 4m. Live load on the dome may be taken as 2.5KN/m². Use M25 concrete and Fe415steel.

5. What are the various thumb rules for proportioning of a staircase?
6. Differentiate between the isolated footing and combined footing?

SECTION B

7. Design a rectangular an axially loaded column of size 250mm X 400mm. Load on the column is 800 KN. Safe bearing capacity of the soil is 180 KN/m². Use M25 concrete and Fe415 steel.
8. A RCC cantilever type retaining wall is having 5.5m tall stem. The wall retains soil level with its top. Soil density is 16000 N/m³ and has angle of repose = 30°. The safe bearing capacity of soil is 21000 N/m². Design the retaining wall.
9. Design a short circular column 6m long to carry an axial load of 250 KN, if both ends of the column are fully restrained. Use helical reinforcement.