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Total No. of Pages : 02

Total No. of Questions : 10

B. Arch. (2012 & Onwards) (Sem.-5)

STRUCTURE DESIGN – IV

Subject Code : BACH-508

Paper ID : [A2907]

Time : 3 Hrs.

Max. Marks : 40

INSTRUCTIONS TO CANDIDATES :

1. Attempt FIVE questions taking any ONE question from EACH UNIT.
2. All questions carry EQUAL marks.
3. Assume any missing data.

UNIT-I

- Q1. Design a steel I-Section to carry an axial compressive load of 700KN. Effective length = 3.2m.
- Q2. Design a built-up column 8.5m long to carry an axial load of 800KN. The column consists of two channels placed back to back and connected by single lacing. Both ends are fixed.

UNIT-II

- Q3. A laterally restrained beam ISMB 300@ 433.6 N/m has an effective span of 6m. Find the safe udl which the beam can carry. Permissible bending stress = 165N/mm^2 Permissible shear stress = 100N/mm^2 .
- Q4. Design a laterally restrained beam of 6.5m effective span to carry a udl of 36KN/m. Apply Check for shear & deflection only.

UNIT-III

- Q5. Design a suitable single angle tie member. The member carries an axial pull of 90KN. The length of member is 2.0 m.
- Q6. Calculate safe compressive load a single angle strut ($80 \times 80 \times 10\text{mm}$) can carry when centre to centre distance between connections is 2.2m. The strut is connected by two rivets at each end.

UNIT-IV

- Q7. Design a grillage foundation for a steel column to carry an axial compressive load of 800KN. The safe bearing capacity of soil is 120KN/m^2 .
- Q8. Draw Plan and cross sectional elevation of a grillage foundation.

UNIT-V

- Q9. Explain various failures of a rivetted joint.
- Q10. Find the strength of a triple riveted lap joint joining two plates of 10mm thickness. The rivets are of 20mm dia and are power driven shop rivets. The pitch of rivets is 70mm centre to centre.

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