Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 10

B. Arch. (Sem.–4)

STRUCTURE DESIGN – IV

Subject Code : AR-238

Paper ID : [A0927]

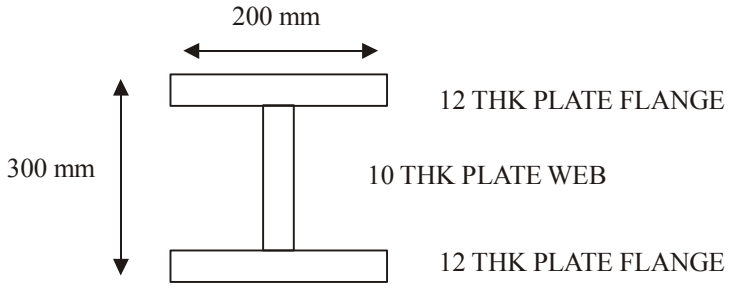
Time : 3 Hrs. **Max. Marks : 50**

INSTRUCTIONS TO CANDIDATES :

1. **Attempt FIVE Questions with ONE question from each part.**
2. **Assume any missing data.**
3. **ALL questions carry EQUAL marks.**
4. **Draw neat diagrams.**
5. **Use of IS – 800, Scientific Calculator is allowed.**

UNIT-I

1. Find radius of gyration about both axis of following I section.



2. a) What do you understand by permissible stress, what is the permissible stress for grade E350 steel ? (5)

   b) What is effective length of uniform section column if both ends are

   c) 1) hinged 2) fixed, draw sketches? (5)

UNIT-II

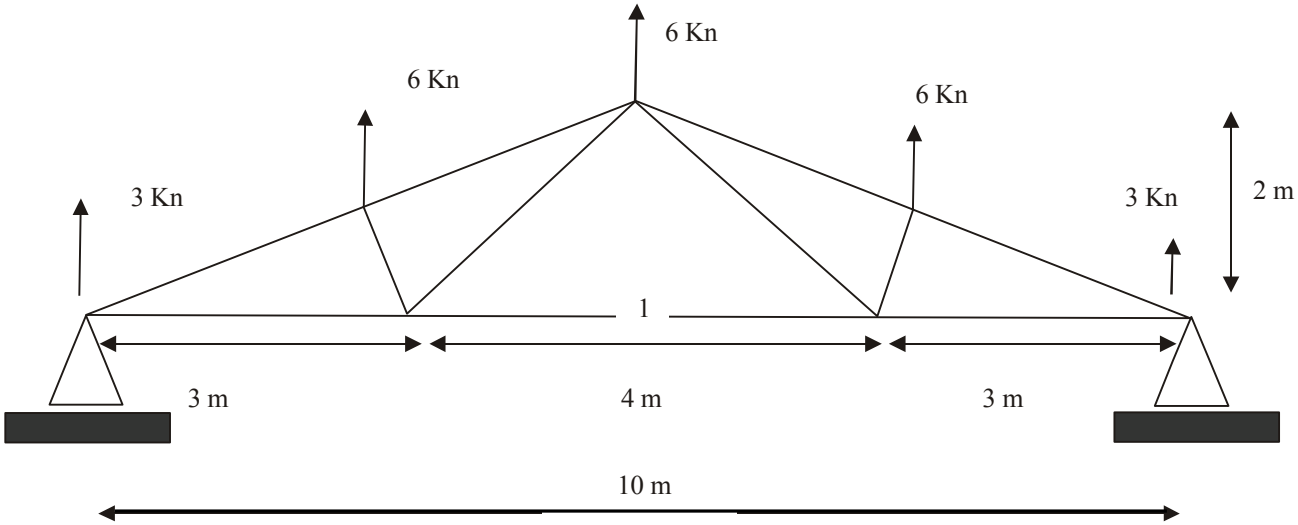
3. Design steel beam in I section for a simply supported, 5m span, to carry uniform load 40Kn/m. Assume permissible bending stress in steel 150n/mm^2. Calculate deflection at centre for designed section. (10)

4. a) What is maximum deflection if hollow box 200×200mm with wall thickness 6mm is used in question no. 3. (5)

   b) How will you check the shear resistance of steel section? (5)

UNIT-III

5. Design member 1 in following truss, (use ANGLE SECTION) (10)



6. a) Describe nature of forces in all members (tensile or compressive) in above figure. Draw sketch. (10)

UNIT-IV

7. What is grillage foundation? Draw a general sketch of grillage foundation and describe function of all parts? (10]

8. Design grillage foundation for 1000Kn load. Assume column base plate 400 × 400mm allowable base bearing 100 kn/m^2. Use grade 250 ISMB sections. (10)

UNIT-V

9. Describe various types of joints in steel structure. Explain with sketches. (10)

10. Write down advantages and disadvantages in riveted and welded connections. (10)