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

Total No. of Questions : 10

B. Arch. (2012 & Onwards) (Sem.–5)

STRUCTURE DESIGN – IV

Subject Code : BACH-508

M.Code : 71752

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

INSTRUCTIONS TO CANDIDATES :

1. **Attempt five questions with one question form each UNIT, All questions are of equal marks -total max marks-50**
2. **Use of IS - 800, Scientific Calculator is allowed. Assume missing data if any. Draw neat diagrams.**

UNIT-I

1. Find radius of gyration about both axis of following hollow box section.

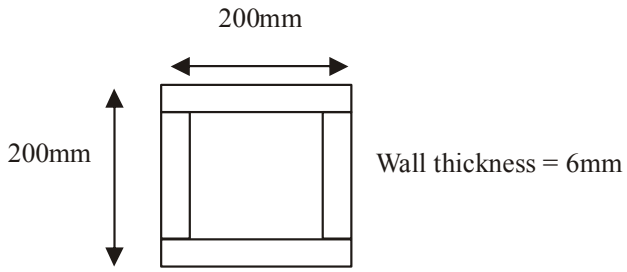

Fig.1

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 :

   {1) hinged , 2) fixed}. , draw sketches? (5)

UNIT-II

3. Find the section modulus required for a simply supported ,5m span, steel beam to carry uniform load 20Kn/m. Assume permissible bending stress in steel 150n/mm^2 (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 Rectangular hollow section] (10)

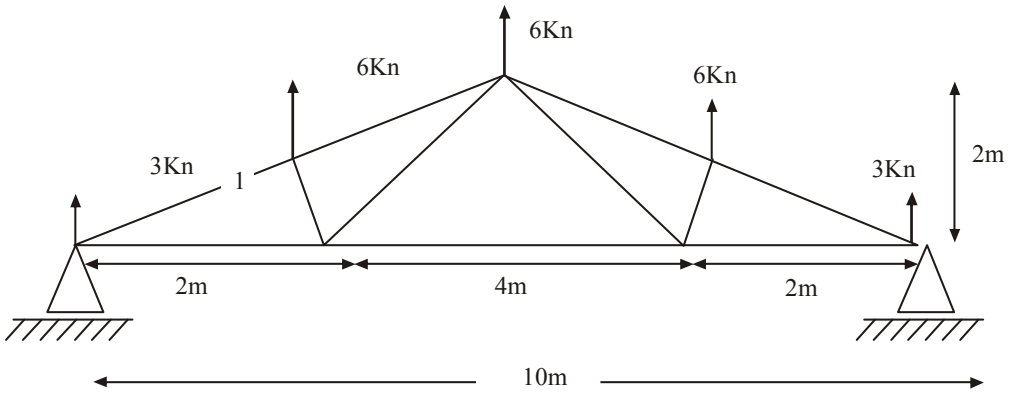

Fig.2

6. 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 500Kn load assume column base plate 400 × 400mm allowable base bearing 200 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)

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.