Roll No. | | | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 10

B. Arch. (Sem.–4)

STRUCTURE DESIGN – IV

Subject Code : AR-238

M.Code : 45035

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

INSTRUCTIONS TO CANDIDATES :

1. **Attempt five questions with one question form each part. All questions are of equal marks.**
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 X axis of following I section.

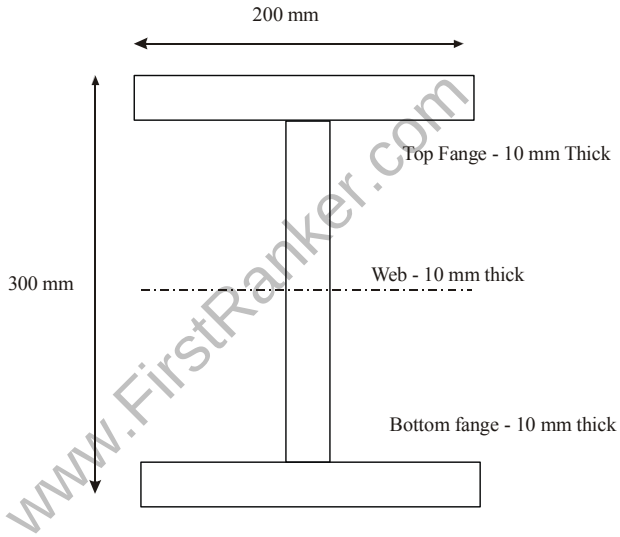

FIG.1

2. a) What do you understand by permissible stress, what is the permissible stress for grade E250 steel? (5)

   b) What is slenderness ratio? Find allowable compressive stress of column section, assume column effective length 3500mm and minimum radius of gyration 25mm consider steel grade 250. (5)

UNIT-II

3. Find the section modulus required for a simply supported ,6m span, steel beam to carry uniform load 25Kn/m. assume permissible bending stress in steel 150n/mm^2 (10)

4. a) What is maximum deflection if hollow box 100x100mm with wall thickness 4mm 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)

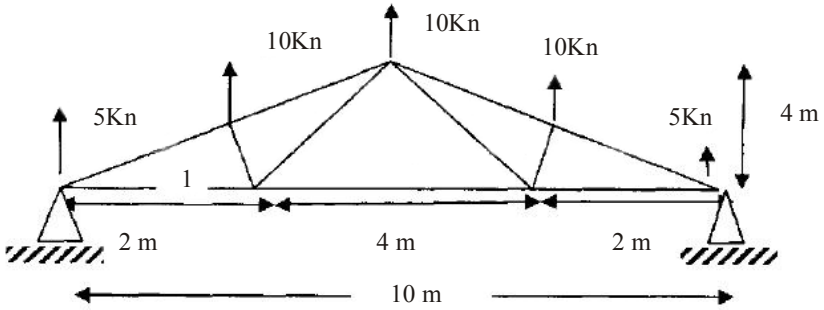

FIG.2

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 700Kn load assume column base plate 400 × 400mm allowable base bearing 100 kn /m^2. Use grade 250 ISMB sections. (10)

UNIT-V

9. a) Describe various types weld joints in steel structure with sketches. (5)

   b) Design welding length required to resist l00Kn tensile force assume welding thickness 4mm. (5)

10. What are riveted joints explain various types of riveted joints? (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.