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

Total No. of Questions : 08

B. Architecture (Sem.–2)

THEORY OF STRUCTURES - I

Subject Code : BACH-207

M.Code : 45095

Date of Examination : 12-07-22

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTIONS TO CANDIDATES :

1. **Question no. 1 is compulsory.**
2. **Attempt any FIVE questions from Question no. 2 to 8.**
3. **Missing data, if any may be assumed suitably.**
4. **Draw neat sketches wherever necessary.**

1. Answer the following : **(2×5=10)**

a) Define resultant Force.

b) Define centre of gravity.

c) Explain Moment of Resistance.

d) What do you mean by Lateral loads?

e) What are different types of stresses?

2. What are the different types of forces? Explain in detail. Also write a short note on Parallelogram law of forces. (10)

3. Explain the concept of Pure Bending. Also, write down the assumptions made in theory of Simple Bending. (10)

4. A steel plate of width 40mm and thickness 12mm is bent into a circular arc of radius 12mm. determine the maximum stress induced and the bending moment which will produce the maximum stress. Take $E = 2 \times 105$ N/m^2. (10)

5. Find the position of centroid of a channel section 4.5cm × 10cm × 0.5cm. How centre of gravity and Centroid can be differentiated? Explain in detail. (10)

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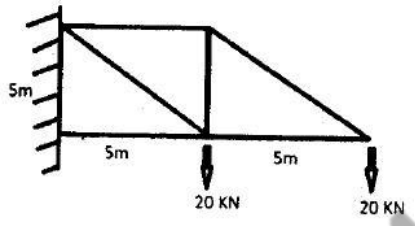
6. Define Hooke's Law. Explain the following (10)

   a) Shear Modulus

   b) Bulk Modulus

   c) Young's Modulus

7. Find magnitude and nature of forces in all members of frame given in figure by method of joints. (10)



8. A cantilever of length 2.5m carries a UDL of 1.5kN/m run over the whole length and a point load of 2kN at a distance of 0.5m from the free end. Draw S.F.D and B.M.D for the cantilever. (10)

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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.