



SARVAJANIK UNIVERSITY

S-2026 Date: 22-06-26 Time: 09:30 AM to 11:30 AM
Regular Exam

B.Arch. -I - SEMESTER- II EXAMINATION

Course Code: BRAR 22202

Course Name: Structure - II

Total Marks: 50

Time : 2 Hours.

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use of nonprogrammable scientific calculator is allowed.
5. Show sign conventions.

Q-1 For the Beam subjected to loading as shown in **Fig -1** & cross section as shown in **Fig- 2** , Calculate & draw bending stress diagram. 13

Q-2 A. For the Beam subjected to loading as shown in **Fig -1** & cross section as shown in **Fig-2** , Calculate & draw Shear stress diagram. 10

B. Answer following questions. 03

1. Stress is the internal resistance given by material when subjected to external force. (True / False)
2. Strain is given by equation , $e = \frac{\Delta L}{L}$
3. Lateral strain means change in lateral dimensions to original dimensions , when load is applied axially . (True / False)

Q-3 Attempt any TWO Questions out of following 24

- (i) Calculate maximum deflection for a beam given in **Fig- 3**.
- (ii) Calculate net stress at points A,B,C,D for the column subjected to eccentric loading of 1000 KN as shown in **Fig-4**.
- (iii) Calculate & draw bending moment diagram for a beam a shown in **Fig - 5** , using Moment distribution Method.
- (iv) Explain types of column & its failure mode ? What is buckling ?

Calculate Load carrying capacity of a column having hollow rectangular cross section , having outer dimension 80 mm x 100 mm with thickness of 20 mm. Consider $E = 2 \times 10^5 \text{ N/mm}^2$. Actual length of column is 6 m. One end of column is fixed & other is free.

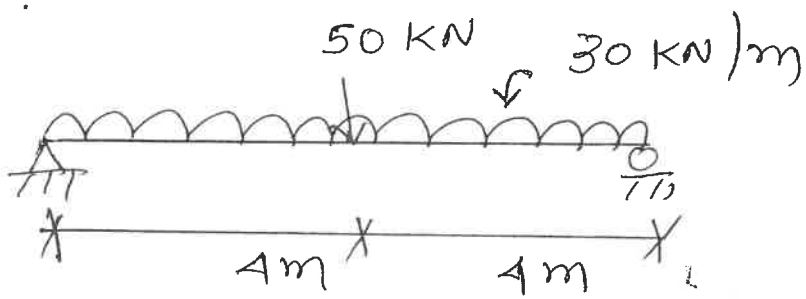


FIG-1

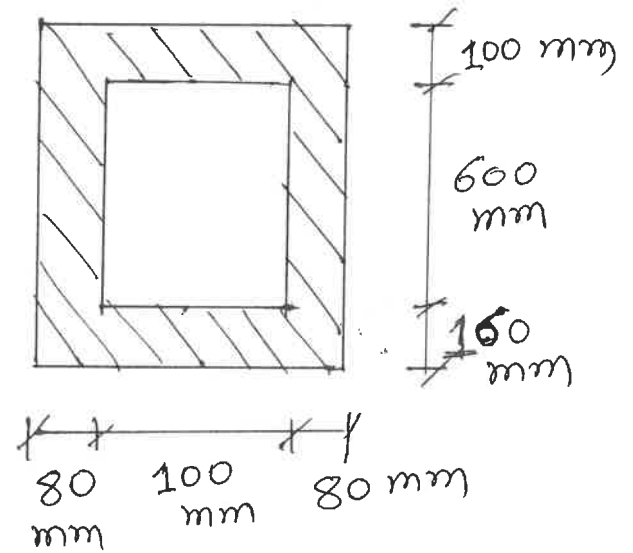


FIG-2

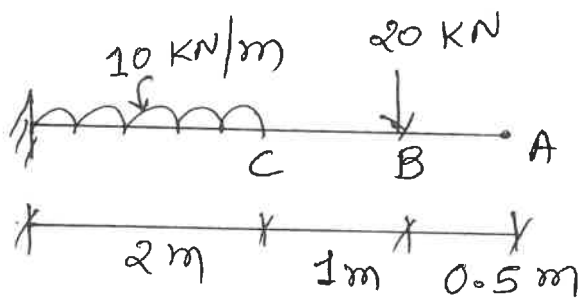


FIG-3

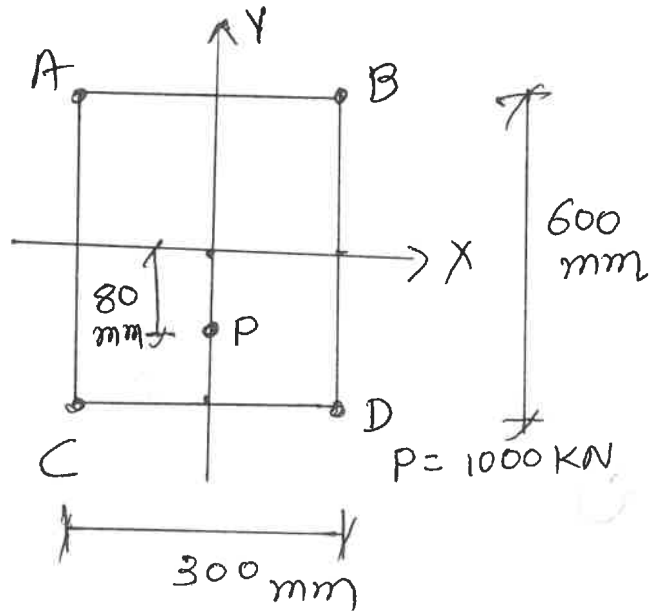


FIG-4

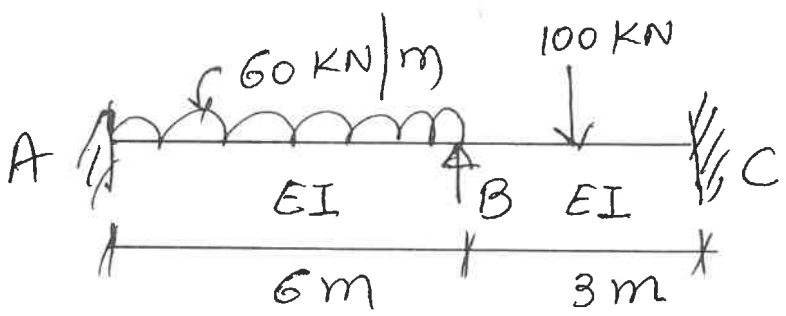


FIG-5