Roll No.

Total No. of Pages : 02

Total No. of Questions : 08

PHD (CIVIL)

ADVANCED STRUCTURAL ANALYSIS Subject Code : PHDCE-17001

Time : 3 Hrs.

Max. Marks: 100

INSTRUCTIONS TO CANDIDATES :

- 1. Attempt any FIVE questions out of EIGHT question.
- 2. Each question carry TWENTY marks.
- 3. Assume data suitably, not given.
- 1. Find out the degrees of statical & kinematic indeterminacies for the structures shown under : (6+7+7)



Fig. 1 (b)

Fig. 1 (a)

Fig. 1 (c)

2. Generate stiffness Matrix w.r.t. the coordinates shown.



3. Find the internal forces for the members. Members BC is subjected to a vertical uniform load downwards of w/unit length. EI & GJ are same for both the members. (20)



(20)

4. For the frame, determine the member forces after dividing the frame into two substructures EI is constant for all. (20)



- 5. For the beam show :
 - (a) Generate the Stiffness Matrix
 - (b) Determine Joint displacements
 - (c) Determine Reactions



- 6. Discuss in detail merits and demerits of Force Method and Displacement Method. Give examples to illustrate your answer. (20)
- 7. Derive stiffness matrix for a member of pin jointed structure in global axis of reference for a member inclined at 1° to the horizontal. (20)
- 8. Using Flexibility approach, determine the reaction at supports for the frame loaded and supported as under : (20)



(20)