Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S5 (S, FE) / S3 (PT) (S, FE) Examination December 2023 (2015 Scheme)

Course Code: CE303

Course Name: STRUCTURAL ANALYSIS -11

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks. Marks

1 a) Analyse the two-span continuous beam shown in Fig. 1 using three moment theorem. (15)

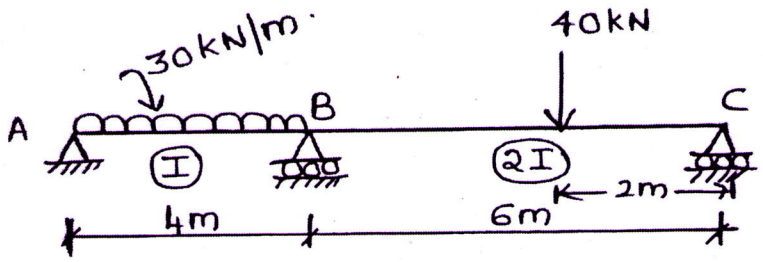

Fig. 1

2 a) Analyse the continuous beam shown in Fig. 2 by slope deflection method. Draw the bending moment diagram. (15)

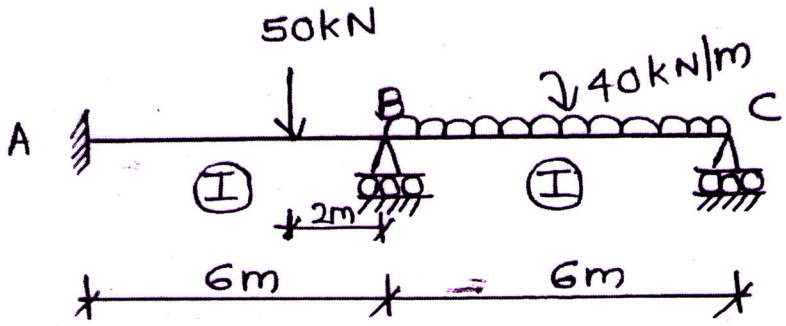

Fig. 2

3 a) Analyse the frame shown in Fig. 3 using slope deflection method and draw the bending moment diagram. EI is same for all members. (15)

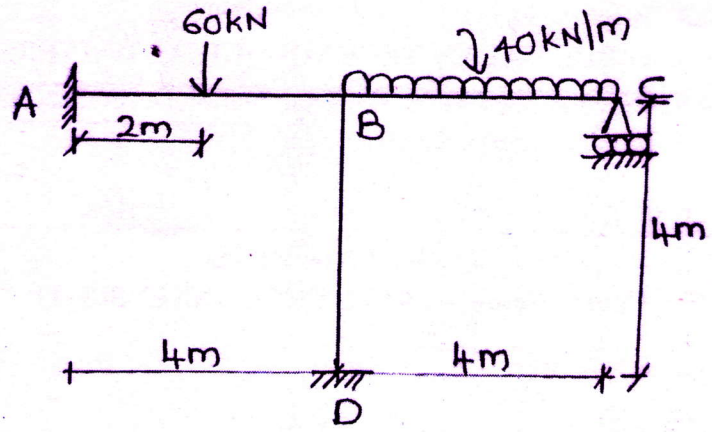

Fig. 3

PART B

Answer any two full questions, each carries 15 marks.

4 a) Analyse the continuous beam shown in Fig. 4 by moment distribution method and draw the bending moment diagram and shear force diagrams. Draw the elastic curve also. (15)

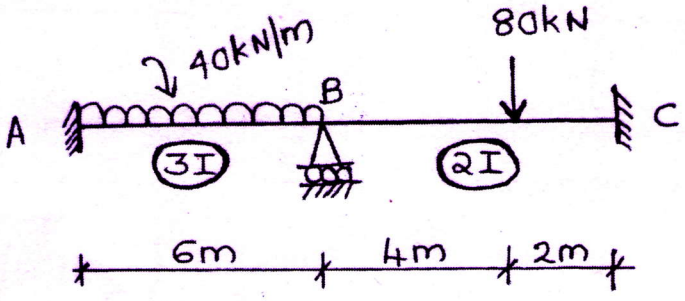

Fig. 4

5 a) Analyse the portal frame in Fig. 5 using moment distribution method. (15)

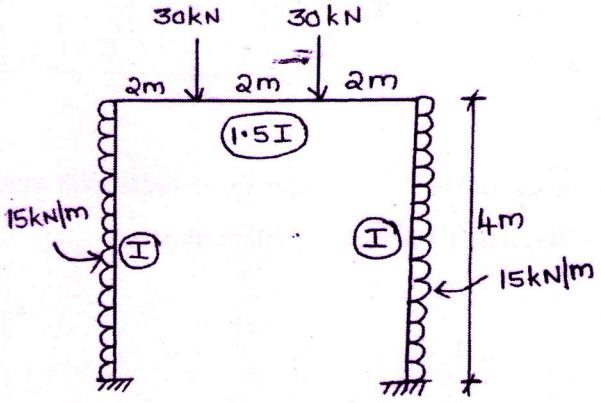

Fig. 5

6 a) Analyse the frame in Fig. 5 using Kani's method. (15)

PART C

Answer any two full questions, eachcarries 20 marks.

7 a) Determine the deflection at the free end for a quarter circular beam of radius R, fixed at end A and free at end B. It carries a vertical load P at its free end. Sketch the shear force, bending moment and torsional moment diagram for the beam in Fig. 6 (12)

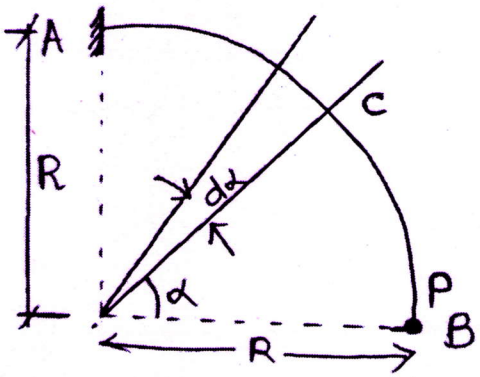

Fig. 6

b) Determine the rotation at the free end of a cantilever curved beam of quarter circle radius R subjected to a concentrated load P at its free end. (8)

8 a) Determine the shape factor of the T section shown in Fig. 7 (8)

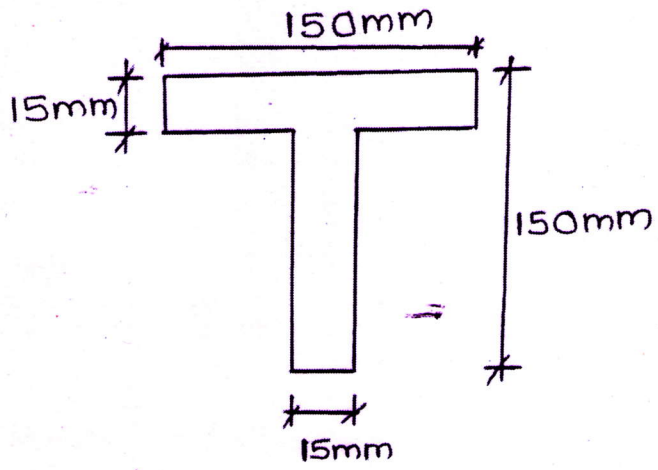

Fig. 7

b) A propped cantilever beam of length 'L' is subjected to udl of intensity w/m. Determine the collapse load if the plastic moment capacity of the beam is M_p. (12)

9 a) Determine the plastic moment capacity for the continuous beam shown in Fig. 8. The loads are collapse-loads. (20)

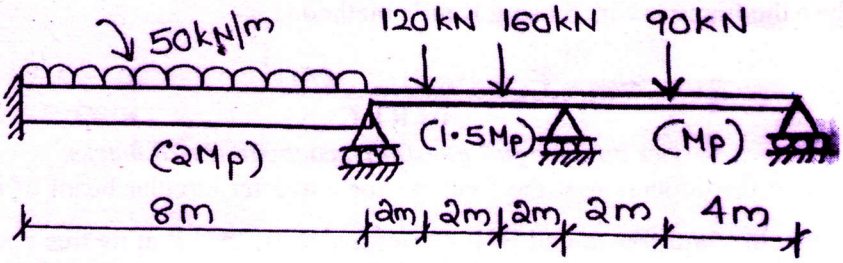

Fig. 8

****