

USN

--	--	--	--	--	--	--	--	--	--

10CT43

Fourth Semester B.E. Degree Examination, June/July 2018
Structural Analysis

Time: 3 hrs.

Max. Marks: 100

**Note: Answer FIVE full questions, selecting
atleast TWO questions from each part.**

PART – A

- 1 Analyse the truss shown in Fig.Q1 by method of joint. (20 Marks)

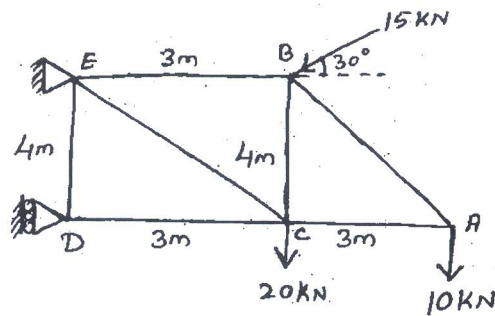


Fig.Q1

- 2 a. Determine slope and deflection at free end using moment area method. (08 Marks)

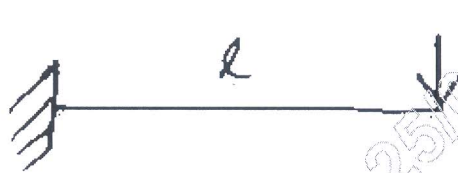


Fig.Q2(a)

- b. Determine slope and deflection under the point load for Fig.Q2(b). (12 Marks)

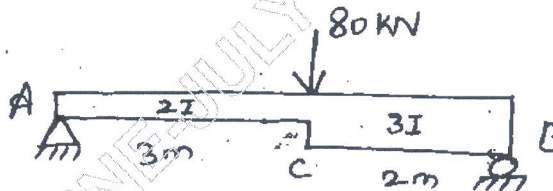


Fig.Q2(b)

- 3 a. Derive an expression for strain energy for a member subjected to axial load. (08 Marks)
b. Calculate the central deflection and slope at ends of a simply supported beam carrying a UDL "W" per unit length over the whole span, using Castigliano's first theorem. (12 Marks)
- 4 A three hinged symmetrical parabolic arch has a span of 30m and a centre rise of 6m. The arch carries an Udl of 30kN/m over left half portion and a concentrated load of 60 kN at 9m from right hand support. Compute the bending moment normal thrust and radial shear at 9m from left support. (20 Marks)

PART - B

- 5 a. A cantilever of uniform flexural stiffness is propped at the remote end. Find the load on the prop when a load W is applied at the centre of cantilever. (15 Marks)
 b. State Betti's reciprocal theorem. (05 Marks)
- 6 Analyze the continuous beam shown below by three moment theorem. Draw BMD. EI constant. (20 Marks)

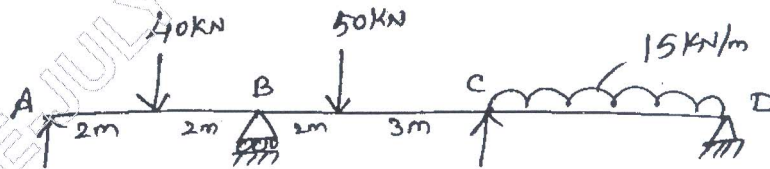


Fig.Q6

- 7 Analyze the continuous beam by slope deflection method. Draw BMD EI constant. (20 Marks)

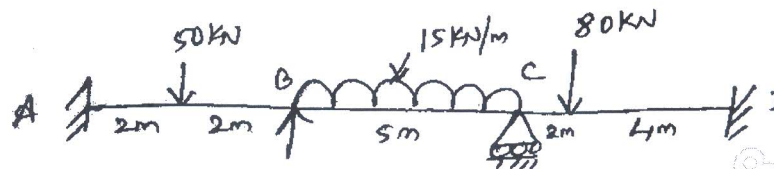


Fig.Q7

- 8 Analyse the continuous beam by moment distribution method. Draw BMD. Take EI constant. (20 Marks)

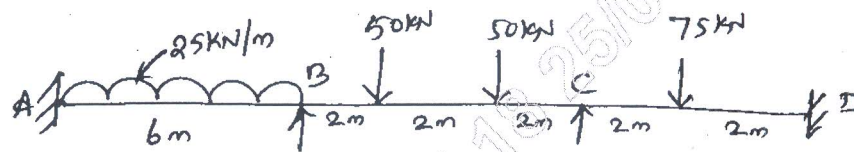


Fig. Q8
