



Fifth Semester B.E. Degree Examination, Aug./Sept. 2020
Structural Analysis – II

Max. Marks: 100

Note: 1. Answer FIVE full questions, selecting at least TWO questions from each part.
 2. Assume missing data if any suitably.

PART – A

- 1 a. Draw influence line diagram, for shear force and bending moment at a section for a simply supported beam. (08 Marks)
- b. A load system moves from left to right on a girder of span 10 m. Find the absolute maximum bending moment. Refer Fig. Q1 (b). (12 Marks)

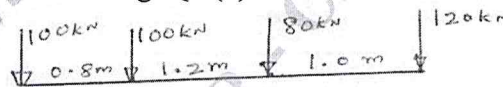


Fig. Q1 (b)

- 2 Analyse the continuous beam shown in Fig. Q2 by slope deflection method. Draw shear force diagram and bending moment diagram. B sinks by 10 mm. $E = 2 \times 10^5$ MPa, $I = 16 \times 10^7$ mm⁴. (20 Marks)

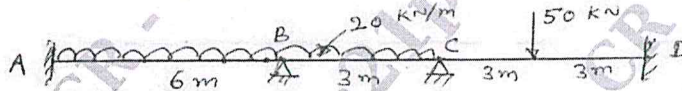


Fig. Q2

- 3 Analyse the Rigid frame shown in Fig. Q3 by moment distribution method. Draw SFD and BMD. (20 Marks)

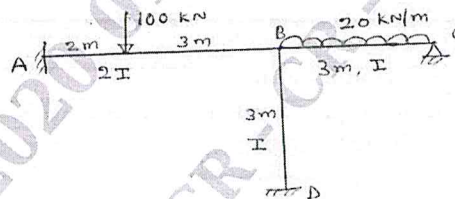


Fig. Q3

- 4 Analyze the portal frame shown in Fig. Q4 by slope deflection method. Draw BMD. (20 Marks)

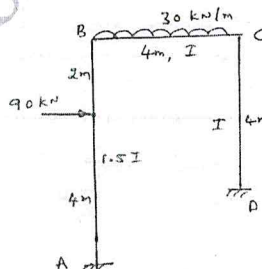


Fig. Q4

CMRIT LIBRARY
 BANGALORE - 560 037

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

PART - B

- 5 Analyze the continuous beam shown in Fig. Q5 by rotation contribution method. Draw BMD. (20 Marks)

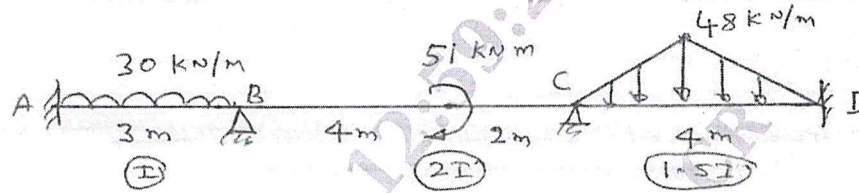


Fig. Q5

- 6 Analyze the two spanned beam shown in Fig. Q6 by flexibility matrix method. Draw BMD. (20 Marks)

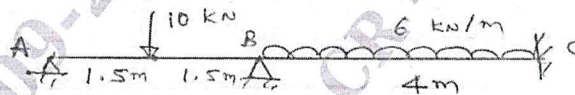


Fig. Q6

- 7 Analyze the rigid frame shown in Fig. Q7 by stiffness matrix approach method. Draw SFD. (20 Marks)

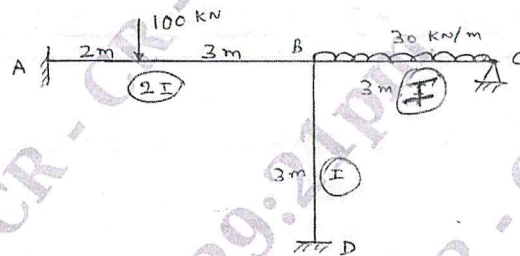


Fig. Q7

CMRIT LIBRARY
BANGALORE - 560 037

- 8 a. Explain : (i) Degree of freedom (ii) Free vibration (iii) Natural frequency (iv) Periodic motion. (08 Marks)
 b. Find the natural frequency of the two simply supported beams with attached mass system as shown in Fig. Q8 (b). Given : $L = 1m$; $EI = 1$. (12 Marks)

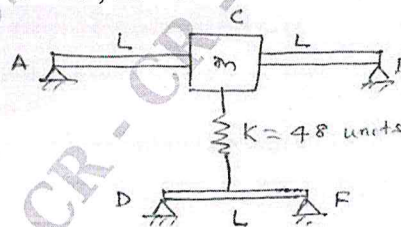


Fig. Q8 (b)
