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10CV53

**Fifth Semester B.E. Degree Examination, June/July 2019**  
**Structural Analysis – II**

Time: 3 hrs.

Max. Marks:100

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

**PART – A**

1. a. An udl of intensity 10 kN/m and of length 4 m is rolling over a simply supported beam of span 12 m (from right to left). Determine the maximum positive and negative shear force at section C. (08 Marks)
- b. Determine the absolute maximum moment for the given beam loaded with moving loads as shown in Fig. Q1 (b). (08 Marks)

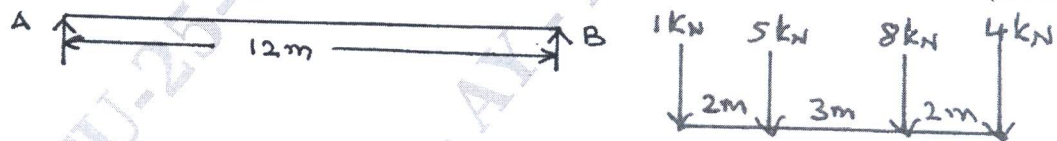


Fig. Q1 (b)

- c. What is an influence line? Explain its importance in structural analysis. (04 Marks)
2. Analyze the continuous beam shown in Fig. Q2 by using slope deflection method. Draw BMD and SFD. (20 Marks)

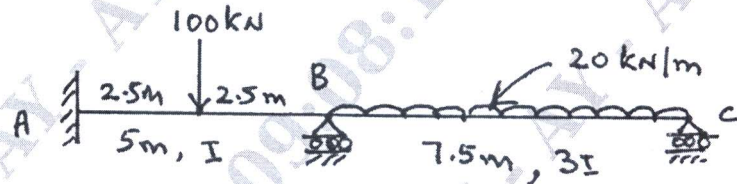


Fig. Q2

3. Analyze the portal frame by moment distribution method and draw BMD and SFD as shown in Fig. Q3. (20 Marks)

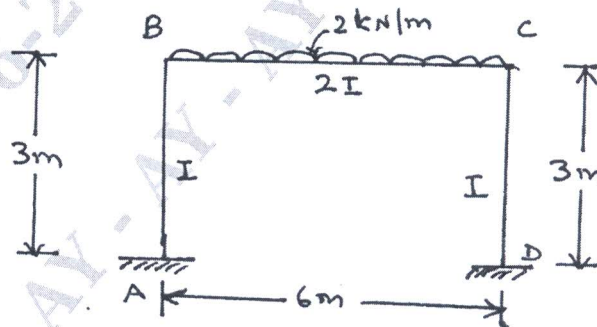


Fig. Q3

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.

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

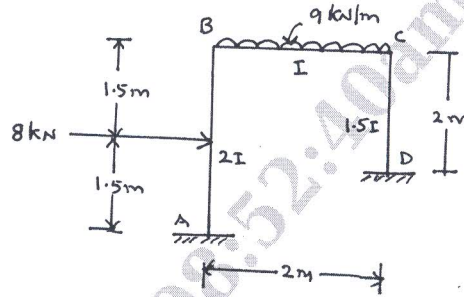


Fig. Q4

**PART - B**

- 5 Analyze the portal frame by Kani's method. Draw BMD. (20 Marks)

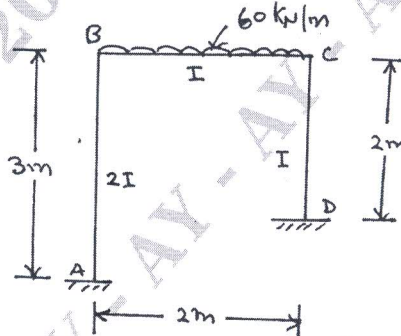


Fig. Q5

- 6 Using Flexibility matrix method (system approach) analyze the continuous beam as shown in Fig. Q6. Draw BMD and SFD, EI constant. (20 Marks)

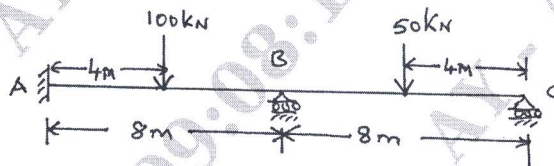


Fig. Q6

- 7 Analyze the portal frame as shown in Fig. Q7 by stiffness matrix method and draw BMD. (20 Marks)

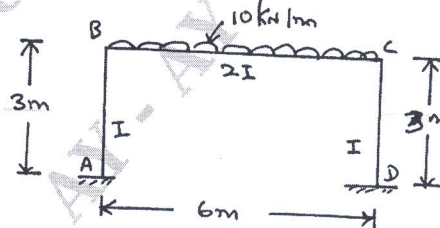


Fig. Q7

- 8 a. Explain degree of freedom, free vibration, natural frequency, periodic motion, forced vibration, damping, single degree of freedom. (14 Marks)  
 b. In a vibrating system of 100 kg is supported by 1,00,000 N/m spring constant. Find the natural frequency, critical, damping co-efficient and period of oscillation. (06 Marks)

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