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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)**

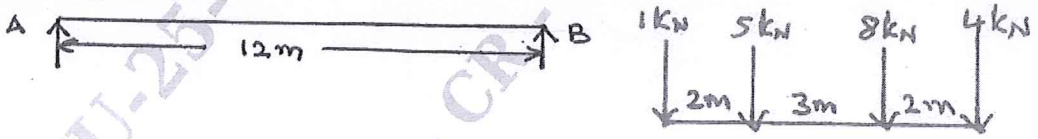

Fig. Q1 (b)

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)**

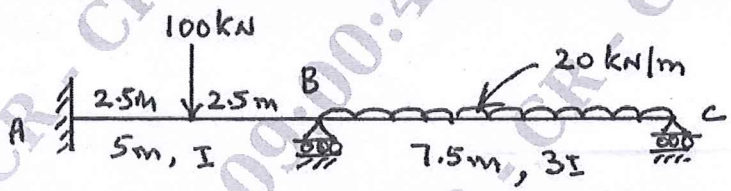

Fig. Q2

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

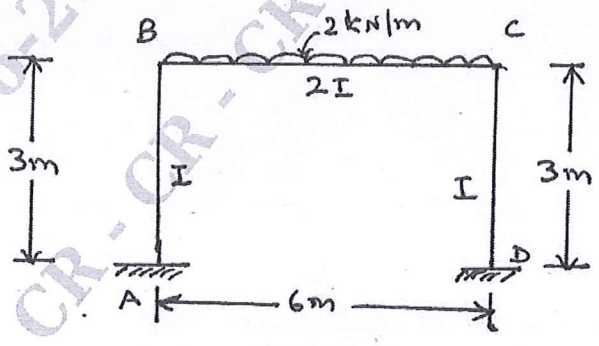

Fig. Q3

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

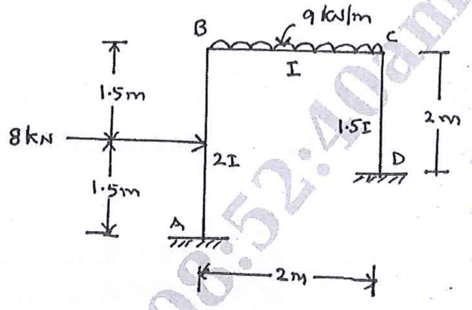

Fig. Q4

PART – B

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

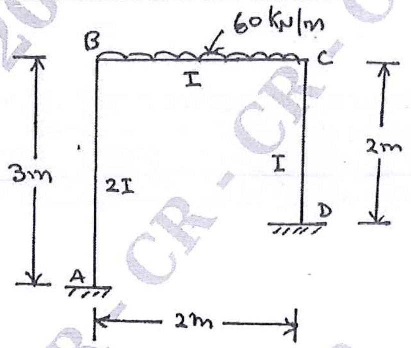

Fig. Q5

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

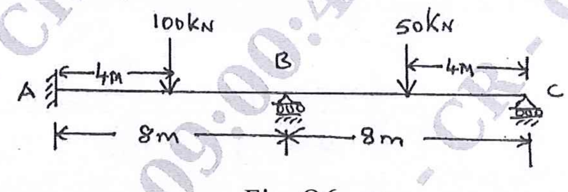

Fig. Q6

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

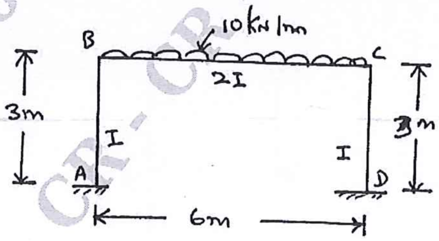

Fig. Q7

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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