Fifth Semester B.E. Degree Examination, Aug./Sept. 2020
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 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, $I = 16 \times 10^7$ mm^4. **(20 Marks)**
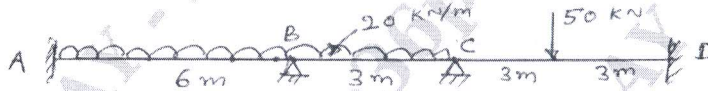

Fig. Q2

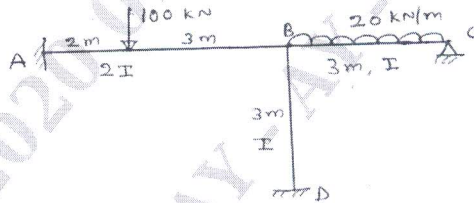3 Analyse the Rigid frame shown in Fig. Q3 by moment distribution method. Draw SFD and BMD. **(20 Marks)**

Fig. Q3

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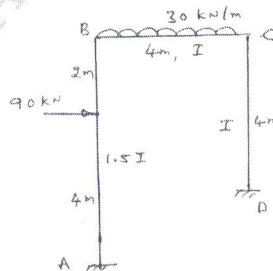

Fig. Q4

PART – B

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

Fig. Q5

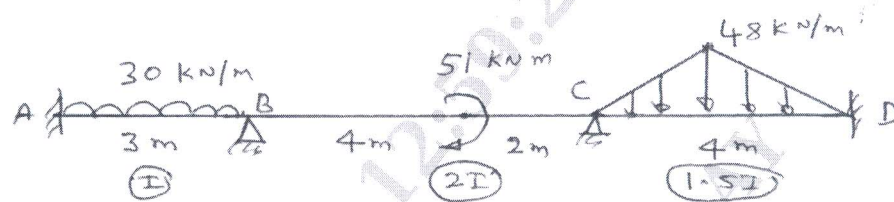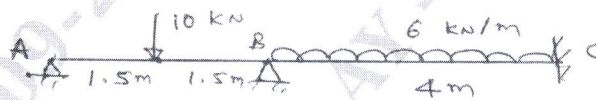**6** Analyze the two spanned beam shown in Fig. Q6 by flexibility matrix method. Draw BMD. **(20 Marks)**

Fig. Q6

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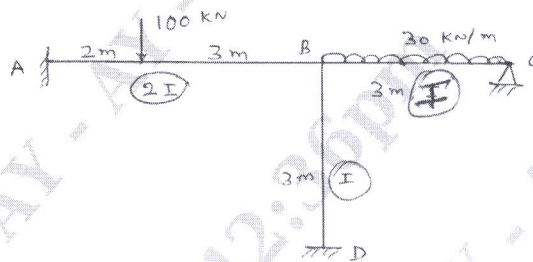

Fig. Q7

8 a. Explain : (i) Degree of freedom (ii) Free vibration (iii) Natrual 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)**
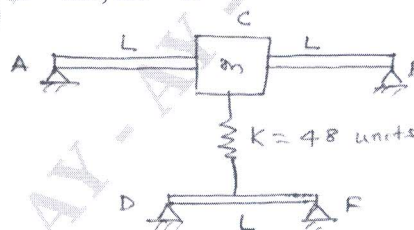

Fig. Q8 (b)

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