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10CV53

Fifth Semester B.E. Degree Examination, Dec.2017/Jan.2018
Structural Analysis – II

Time: 3 hrs. Max. Marks:100

Note: 1. ***Answer FIVE full questions, selecting at least TWO questions from each part.***
2. ***Missing data may be assumed suitably.***

PART – A

1 a. What is an influence line? Explain its importance in structural analysis. **(04 Marks)**

b. The load system shown in Fig. Q1 (b) move from left to right on a girder of span 10 m. Find the absolute maximum B.M. for the girder. Also find the maximum +ve and –ve S.F. anywhere on the beam. **(16 Marks)**

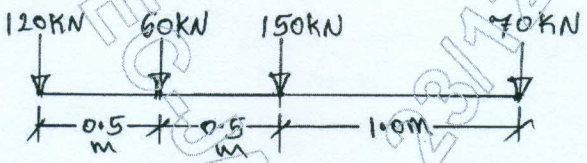

Fig. Q1 (b)

2 Analyse the continuous beam shown in Fig. Q2 by slope deflection method and draw B.M. diagram. Support B sinks by 1.0 mm and C rises up by 0.5 mm relative to support A. Take EI = 30000 kN-m^2. **(20 Marks)**

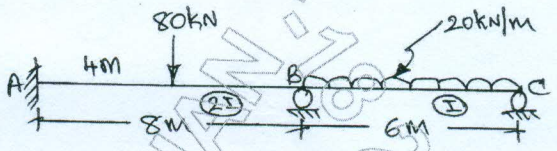

Fig. Q2

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

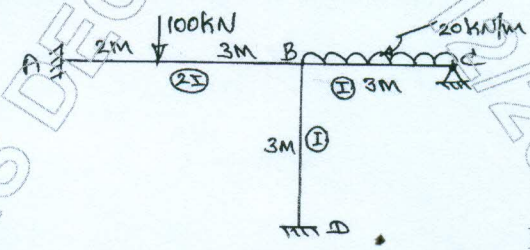

Fig. Q3

4 Find the total force P to be applied at C to prevent sway shown in Fig. Q4. Use slope deflection method. **(20 Marks)**

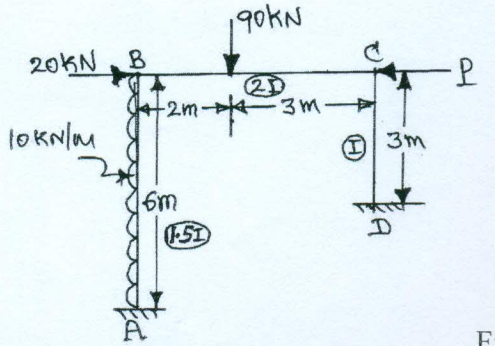

Fig. Q4

PART – B

5 Analyse the multistorey building frame shown in Fig. Q5 by Kani's method and draw BMD. Use principle of symmetry only. **(20 Marks)**

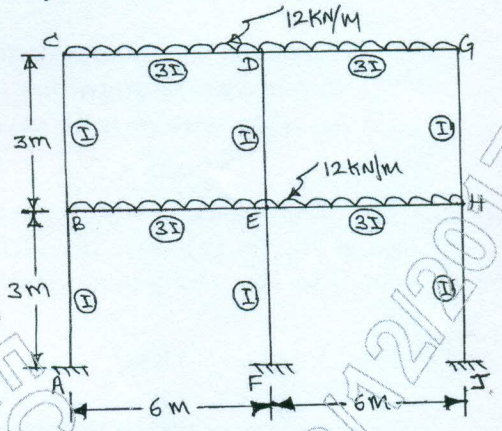

Fig. Q5

6 Analyse the frame shown in Fig. Q6 by flexibility matrix method. Draw BMD. **(20 Marks)**

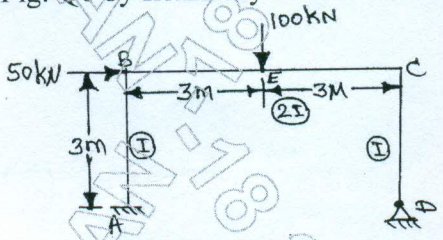

Fig. Q6

7 Analyse the portal frame shown in Fig. Q7 by stiffness matrix method. Draw BMD EI constant. **(20 Marks)**

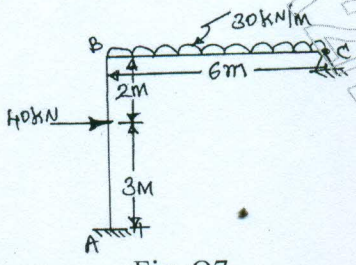

Fig. Q7

8 a. Define natural frequency and period of vibration. **(04 Marks)**

b. Determine the natural frequency of the systems shown in Fig. Q8 (b). **(10 Marks)**

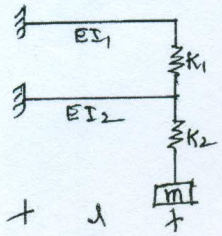

Fig. Q8 (b)

c. Set up the differential equation of motions for the free vibration of a spring mass system. **(06 Marks)**

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