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)**
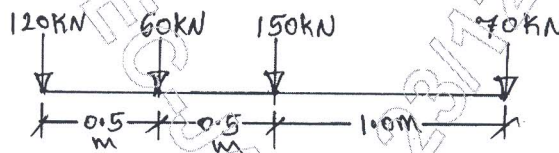

Fig. Q1 (b)

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)**
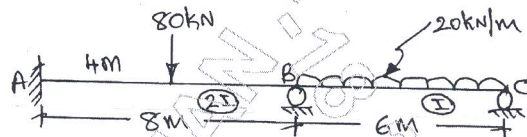

Fig. Q2

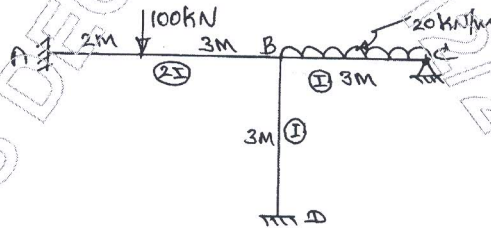3   Analyse the given frame shown in Fig. Q3 by moment distribution method and draw BMD and SFD.   **(20 Marks)**

Fig. Q3

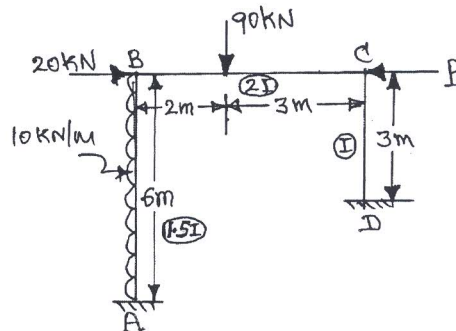4   Find the total force P to be applied at C to prevent sway shown in Fig. Q4. Use slope deflection method.   **(20 Marks)**

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)**
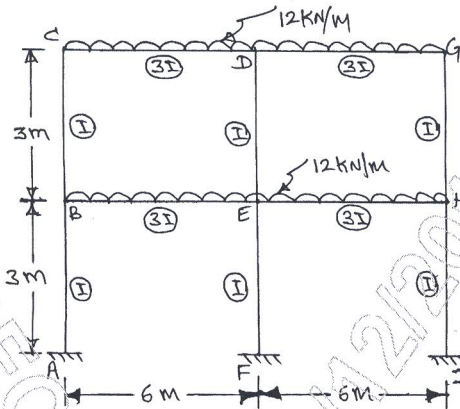

Fig. Q5

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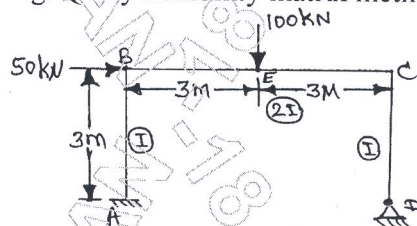

Fig. Q6

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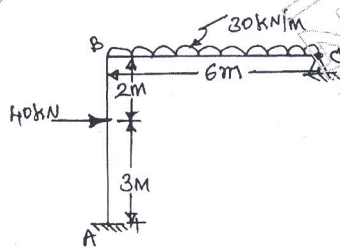

Fig. Q7

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)**
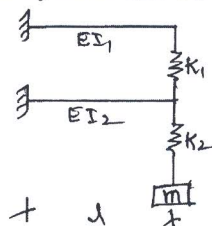

Fig. Q8 (b)

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

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