

ONE TIME EXIT SCHEME

USN

--	--	--	--	--	--	--	--	--	--

CMRIT LIBRARY
BANGALORE - 560 037

10CV53

Fifth Semester B.E. Degree Examination, April 2018
Structural Analysis – II

Time: 3 hrs.

Max. Marks:100

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

PART – A

- What is an influence line? Explain its importance in structural analysis. (04 Marks)
 - An UDL of intensity 50 kN/m and length 6m, crosses a simply supported girder of span 25m from left to right. Calculate :
 - Maximum reactions
 - Maximum SF and maximum BM at a section 10m from left
 - Absolute maximum BM. (16 Marks)
- Analyse the frame shown in Fig.Q2 by using slope deflection method. Draw BMD elastic curve. (20 Marks)

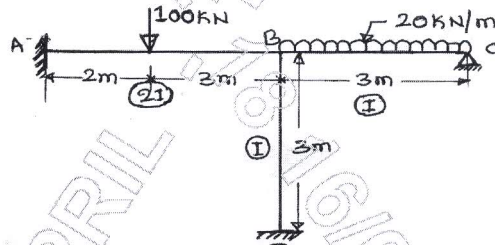


Fig.Q2

- Analyse the continuous beam shown in Fig.Q3 by moment distribution method. Draw the bending moment diagram and shear force diagram. (20 Marks)

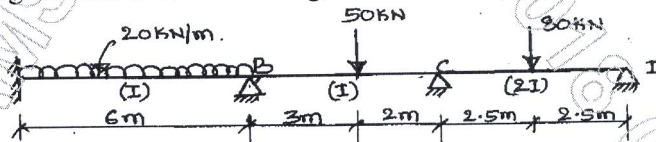


Fig.Q3

- Analyse portal frame shown in Fig.Q4 by slope deflection method and draw the bending moment diagram also sketch the deflected shape of the structure. (20 Marks)

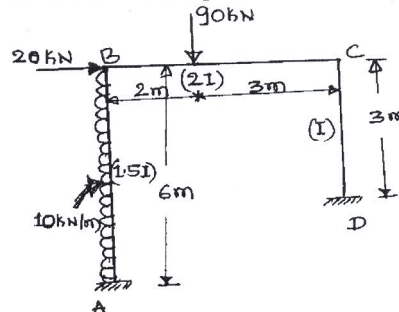


Fig.Q4

1 of 2

CMRIT LIBRARY
BANGALORE - 560 037

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.

PART - B

- 5 Analyse the portal frame shown in Fig.Q5 by Kani's method. Draw bending moment diagram and elastic curve. Take $EI = \text{constant}$ for all the members. (20 Marks)

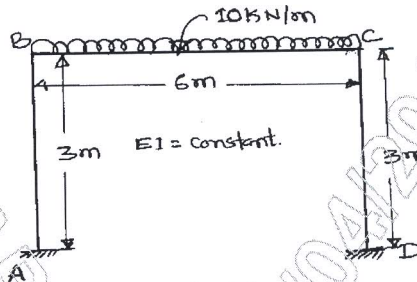


Fig.Q5

- 6 Analyse the beam shown in Fig.Q6 by flexibility matrix method and draw the BMD and SFD. (20 Marks)

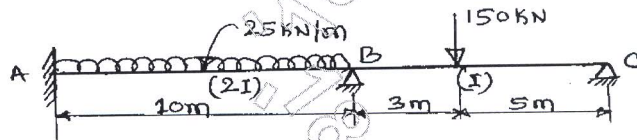


Fig. Q6

- 7 Analyse the continuous beam shown in Fig.Q7 by stiffness matrix method and draw BMD and SFD. Choose M_A and M_B as redundants. (20 Marks)

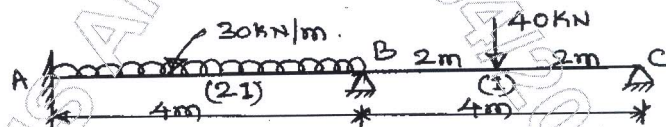


Fig.Q7

- 8 a. Explain the following :
 i) Natural frequency
 ii) Damping
 iii) Periodic and aperiodic motion
 iv) Free and forced vibration. (08 Marks)
- b. Develop the solution for a differential equation of a body, when it is under :
 i) Free undamped vibration
 ii) Free damped vibration. (12 Marks)