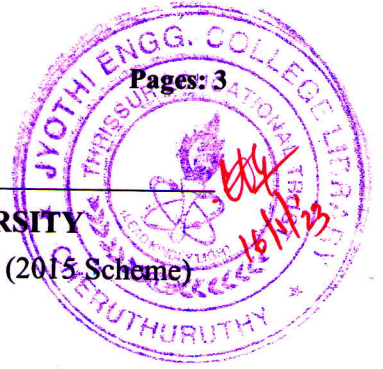Reg No.:_____

Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
Fifth Semester B.Tech Degree (S, FE) Examination January 2023 (2015 Scheme)

Course Code: CE303

Course Name: STRUCTURAL ANALYSIS -II

Max. Marks: 100   Duration: 3 Hours

PART A
Answer any two full questions, each carries 15 marks.   Marks

1   a)   Analyse the continuous beam in Fig.1 using Three moment equation. Also draw   (15) SFD and BMD.
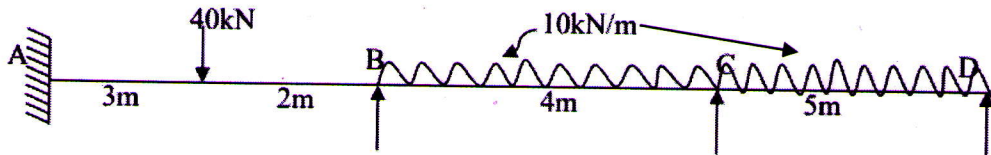

Fig.1

2   a)   Distinguish between static indeterminacy and kinematic indeterminacy with   (6) examples.

    b)   Analyse the continuous beam in Fig.1 using Slope deflection method.   (9)

3   a)   Analyse the portal frame shown in Fig.2 using slope deflection method and draw   (15) the BMD.
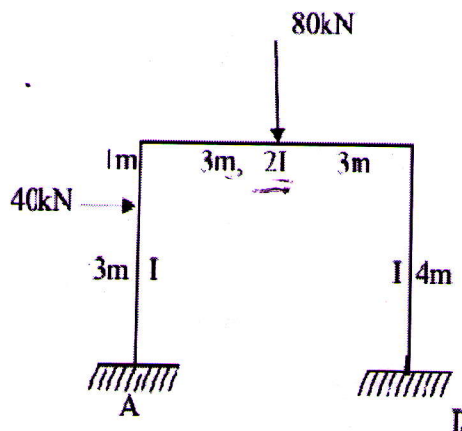

Fig.2

PART B

Answer any two full questions, each carries 15 marks.

4 a) Define the terms: Distribution factor and Carry-over factor   (3)

   b) Analyse the continuous beam shown in Fig.3 using the moment distribution   (12)
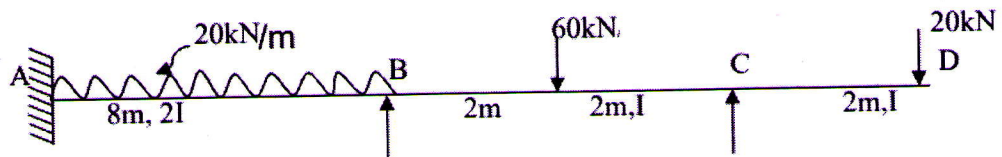   method. Also draw the BMD.

Fig. 3

5 a) Enumerate the steps involved in the analysis of sway frames using the Moment   (6)
       distribution method.

   b) Analyse the continuous beam shown in Fig.3 using the Kani's method.   (9)

6 a) Analyse the portal frame shown in Fig.4 using Kani's method and draw the BMD. (15)
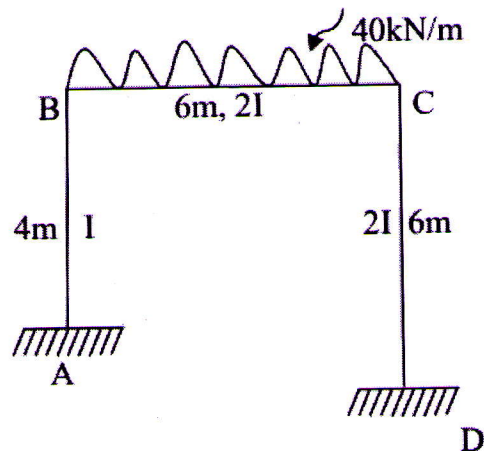

Fig.4

PART C

Answer any two full questions, each carries 20 marks.

7 a) A semi-circular beam ACB (curved in plan) of radius 3m is fixed at support A and   (20)
       support B. It carries a uniformly distributed vertical load of 20kN/m along the
       length of the curve .Draw the BMD and twisting moment diagram for the beam
       ACB.

8 a) Determine the deflection at the free end of a beam in the shape of a quadrant of a   (10)
       circle of radius R in plan, fixed at one end and free at the other end. A point load P
       acts at the free end in direction of gravity.

b) Determine the collapse load 'W' for a three span continuous beam of constant   (10)
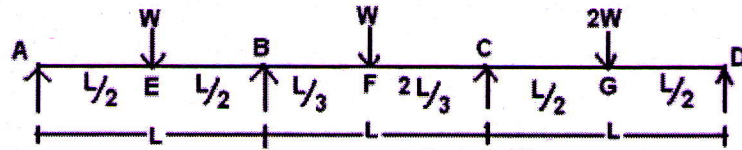plastic moment 'MP' loaded as shown in Fig.5.

Fig.5

9 a) State the Static theorem, Kinematic theorem and Uniqueness theorem with   (8)
reference to Plastic Analysis.

b) A continuous beam ABC is loaded as shown in Fig.6. Determine the required   (12)
Plastic moment capacity of the section if the load factor is 3.2.
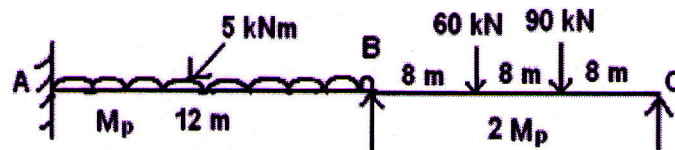

Fig.6

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