

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

Fifth semester B.Tech degree examinations (S) September 2020

**Course Code: CE303****Course Name: STRUCTURAL ANALYSIS -II**

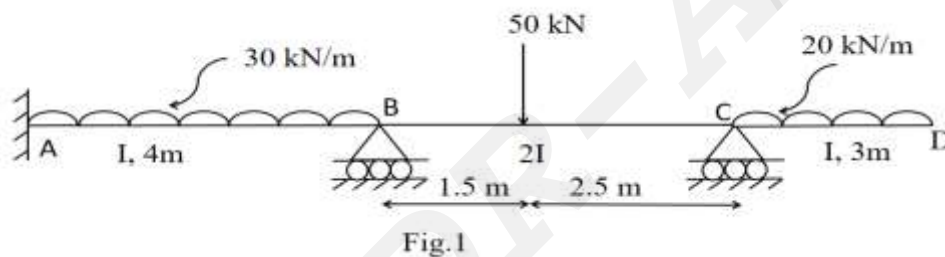
Max. Marks: 100

Duration: 3 Hours

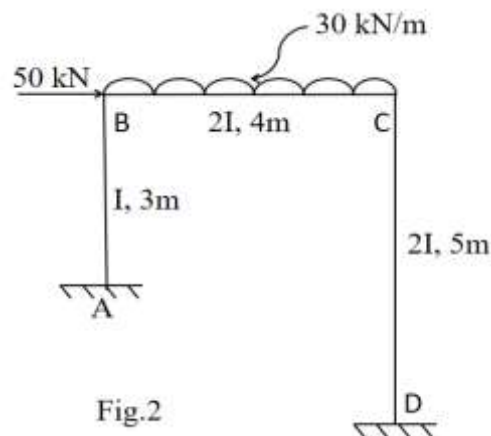
**PART A***Answer any two full questions, each carries 15 marks.*

Marks

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



- 2 a) Write three moment equation and mention the terms involved it. (4)
- b) How will you account for support settlement in the analysis of continuous beams by three moment equation? (3)
- c) Analyse the continuous beam given in Fig.1 by Slope deflection method and draw BMD. (8)
- 3 Analyse the portal frame given in Fig.2 using Slope deflection method and draw BMD. (15)



**PART B**

*Answer any two full questions, each carries 15 marks.*

- 4 a) Differentiate between absolute stiffness and relative stiffness. (5)  
 b) Analyse the continuous beam given in Fig.3 by Moment distribution method and draw BMD. (10)

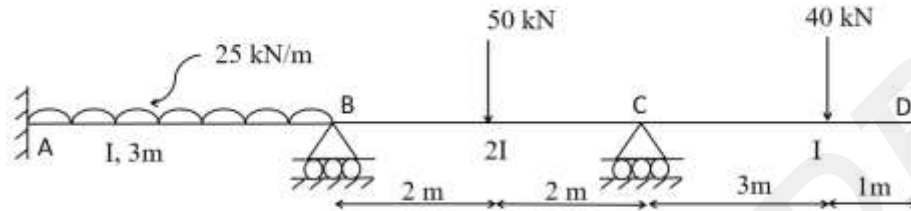


Fig.3

- 5 a) With the help of suitable figures, list the conditions under which a portal frame may sway laterally. (5)  
 b) Write down the analysis procedure of a continuous beam by Kani's method. (5)  
 c) What do you understand by support settlement and how does it affect the final moments in a continuous beam? (5)
- 6 Analyse the portal frame in Fig.4 by Kani's method and draw BMD. (15)

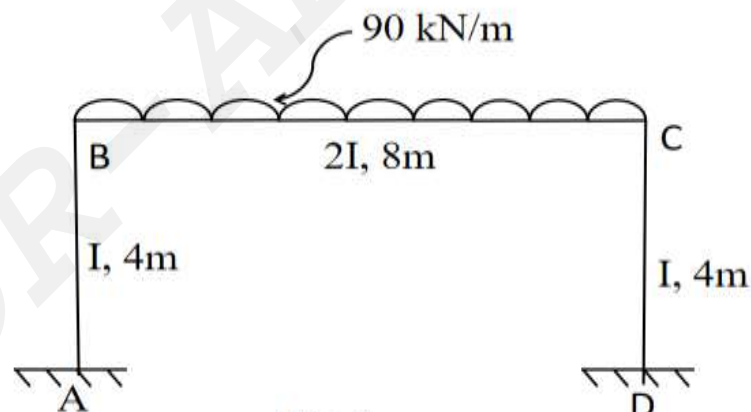


Fig.4

**PART C**

*Answer any two full questions, each carries 20 marks.*

- 7 Analyse and draw bending moment and twisting moment diagrams for a beam semi circular in plan, and supported on three equally spaced hinges. The radius of the beam is 3.5 m and it carries a udl of 20 kN/m. (20)
- 8 a) Derive the expression for deflection at free end of a beam in the shape of a quadrant of a circle in pla, fixed at one end, with a point load at the free end. (8)

- b) Calculate the plastic moment capacity of the portal frame shown in Fig.5 assuming (12)  
same plastic moment for all members.

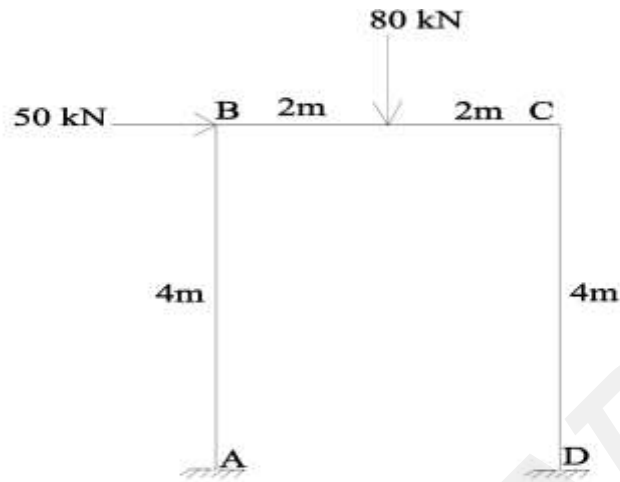


Fig.5

- 9 a) List the assumptions in Plastic theory. (5)  
b) Define shape factor and derive the same for a circular section of diameter D. (7)  
c) Calculate the plastic moment capacity of the continuous beam shown in Fig.6. (8)

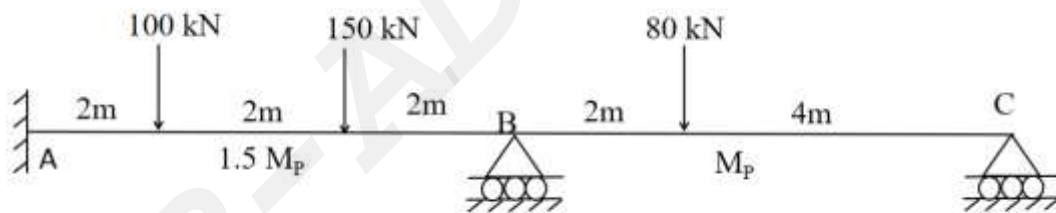


Fig.6

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