

Code: CE5T4

**III B.Tech - I Semester – Regular/Supplementary Examinations
October 2018**

**STRUCTURAL ANALYSIS - II
(CIVIL ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

PART – A

Answer *all* the questions. All questions carry equal marks

11x 2 = 22 M

1.

- a) What are the reasons for sway in portal frames.
- b) Why is slope deflection method known as stiffness method?
- c) Name any four methods used for computation of deflection in structures.
- d) Mention any three reasons due to which sway may occur in portal frames.
- e) Write advantage of Kani's method.
- f) What is sway correction?
- g) Differentiate external and internal indeterminacy of structures.
- h) State how the redundancy of a rigid frame is calculated.
- i) Define radial shear and normal thrust.
- j) State Eddy's theorem as applicable to arches.
- k) What is tied arch?

PART – B

Answer any **THREE** questions. All questions carry equal marks.
 $3 \times 16 = 48 \text{ M}$

2. Analyze the two span continuous beam loaded as shown in Fig.1 by the slope deflection method. The end supports are simply-supported. Sketch the B.M and S.F. diagrams. 16 M

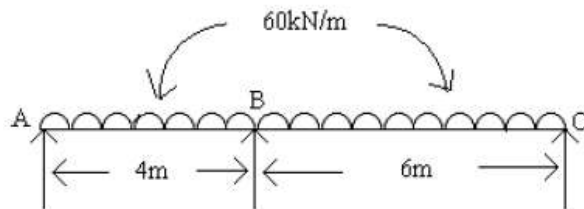


Fig.1

3. Draw BMD for the Continuous beam shown in Fig.2 by using Moment Distribution method. 16 M

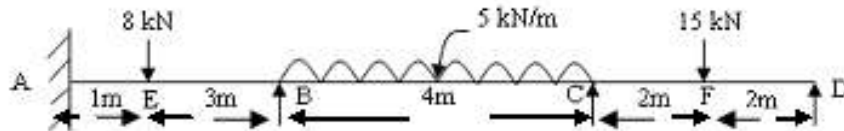


Fig.2

4. Analyse the continuous beam shown in Fig.3 and draw the bending moment diagram by Kani's method. 16 M

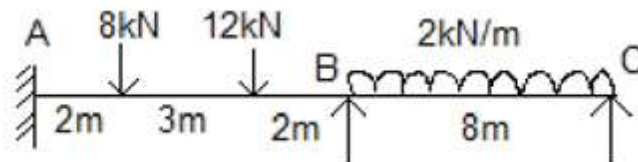


Fig.3

5. Calculate the member forces of the given truss by using method of joints as shown in Fig.4. 16 M

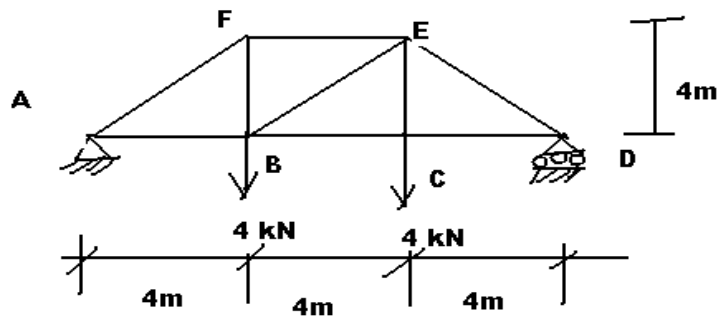


Fig.4

6. A two hinged parabolic arch at span l and rise h carries a uniformly distributed load of w per unit run over the left half of span. The moment of inertia of the arch rib varies as the secant of the slope of the rib axis. Obtain the expression for the horizontal thrust H at the supports. If $l = 25$ m and $h = 5$ m and $w = 25$ kN/m, calculate (i) H at the supports and (ii) B.M at the quarter span point on the right half of the arch. 16 M