PVP 14

Code: CE4T6

II B.Tech - II Semester–Regular/Supplementary Examinations–April 2018

STRUCTURAL ANALYSIS-I
(CIVIL ENGINEERING)

Duration: 3 hours Max. Marks: 70

PART – A

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

11 x 2 = 22

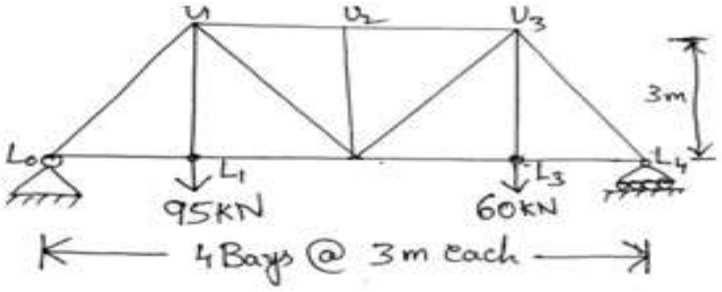
1. a) Define about method of sections method?
   b) What is Degree of redundancy?
   c) Draw ILD for shear force at any section in a cantilever beam?
   d) What do you mean by absolute maximum shear force?
   e) Explain the effect of temperature rise on the horizontal thrust for a three hinged arch carrying a loading?
   f) Define Eddy's theorem?
   g) Write the equations to calculate Normal thrust at any section in an arch?
   h) A Fixed beam carrying a concentrated load eccentrically placed on the span. Write the fixed end moments?
   i) What is the prop reaction developed in a propped cantilever beam, length L, subjected to a point load at mid span ?
   j) Explain about Clapeyrons theorem of three moments?
   k) Find the support moment for a propped cantilever subjected to a moment M at the prop?

PART – B

Answer any ***THREE*** questions. All questions carry equal marks.

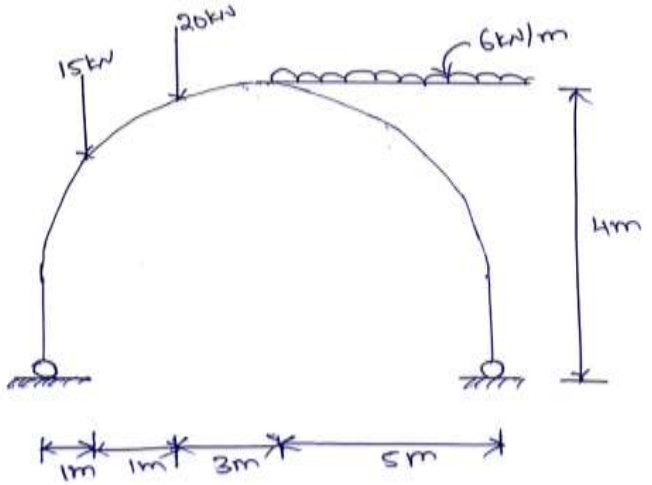
3 x 16 = 48 M

2. Determine the forces in all the members by using method of joints for a two span continuous truss loaded as shown in fig. The area of cross section of U_1L_1 and U_3L_3 is 800mm^2 while for other members; it is 600mm^2. Consider E as constant for all the members. 16 M

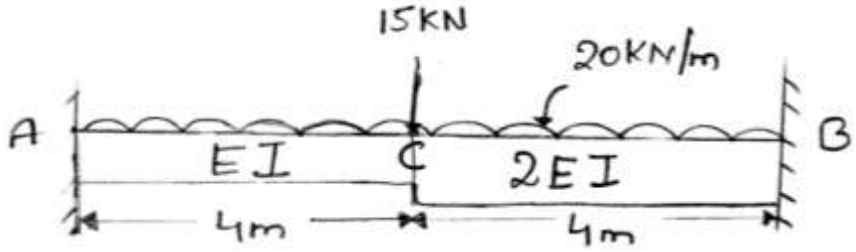


3. A system of five loads 100KN,140KN,150KN,80KN,50KN crosses a beam of 15m span with 50KN leading the distance between the loads are 3.5m, 2.5m, 2.6m, and 1.4m respectively. Find the maximum bending moment at the centre of the span. Also find the absolute Maximum bending moment of the span? 16 M

4. A parabolic arch of 10m span and 4m raise is hinged at the ends and at the crown as shown in fig. Calculate the Reactions, Normal thrust and radial shear under 20kN load. 16 M



5. Find the Fixed end moments for the fixed beam shown in fig. if the support B sinks by 6mm? Consider E=2.1x10^5 N/mm^2, I=1600x10^4 mm^4 16 M



6. Analyse the continuous beam shown in fig. by using Clapeyrons theorem of three moments. 16 M