PVP 14

Code: CE4T6

II B.Tech - II Semester – Regular Examinations – May 2016

STRUCTURAL ANALYSIS - I
(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 limitations of method of sections approach?
b) What happens to the horizontal thrust in three hinged arch when there is a sudden rise in the temperature?
c) A fixed beam AB of span 'L' is loaded with a central load 'W', the support moment at A will be?
d) What are uses of influence lines?
e) A fixed beam of span L rotates by θ anti-clockwise at right support, what will be the reaction at right support?
f) What is the static indeterminacy of a fixed beam?
g) Mentions any two applications of cable structures.
h) What type of stress is dominant present in cables while they carry the loads?
i) Define Eddys theorem.
j) The moment at the intermediate support of a two span continuous beam of 6 m each with simple support at both

the ends carrying a uniformly distributed load of 20Kn/m over the left span is?

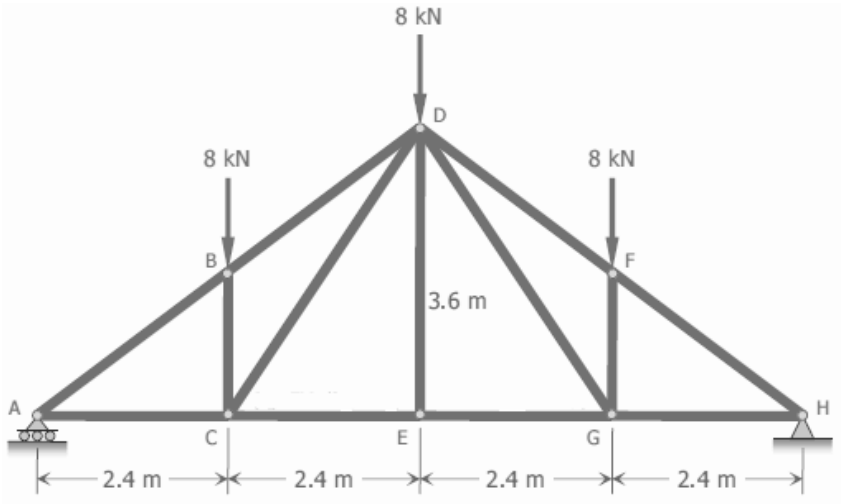
k) Give any two applications of cable structures.

PART – B

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

3 x 16 = 48 M

2) Determine the force in each member of the Pratt roof truss shown below. 16 M



3) A uniform load of 30kN/m, 5m long, crosses a girder 20m span. Calculate the maximum +ve and –ve S.F at a section 8m from the left support as well as B.M at a section 8m from the left support. Also find absolute maximum shear force and absolute maximum bending moment in the beam. 16 M

4) A symmetrical 3-hinged parabolic arch has a span of 20m. It carries UDL of intensity 10 kNm over the entire span and 2

point loads of 40 kN each at 2m and 5m from left support. Compute the reactions. Also find BM, radial shear and normal thrust at a section 4m from left end take central rise as 4m.

16 M

5) A beam AB 6m long is fixed at A and simply supported at B. The beam carries point loads 18 KN and 36 KN at distances 2m and 4m respectively from end A. Calculate support reactions at A and B. Find what couple should be applied at the end B so as to completely neutralize the moment at A.

16 M

6) Using Clapeyron's theorem of three moments for continuous beam shown below, determine moments M_B and M_C. The supports A, B and D sink by 1.5mm, 3mm and 2mm respectively. Assume EI = 3 x 10^4KNm^2. Draw the bending moment diagram. 16 M