

Seat No. : _____

NN-113

December-2015

B. Arch., Sem.-III

AR-303 : Structures – III

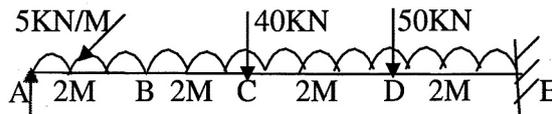
Time : 3 Hours]

[Max. Marks : 50

- Instructions :** (1) Assume suitable data if require.
(2) Scientific calculator is permitted.

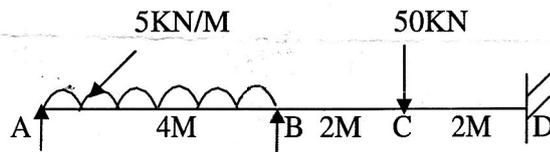
1. (1) A single span fixed beam having span L, subjected to a point load at center, the equation for find fixed end moment is _____, when subjected to eccentric point load _____ and when subjected to U.D.L. throughout the span _____.
- (2) Find fixed end moment and draw final bending moment diagram.

3
7



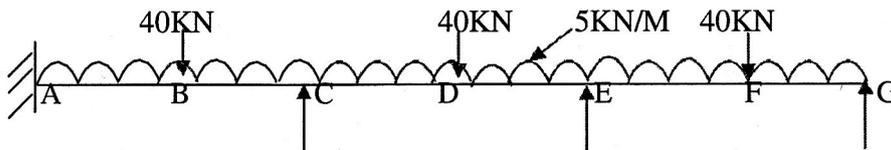
2. (1) Write an equation for clapyron's theorem and explain it.
- (2) Solve by three moment principle and draw final bending moment diagram.

2
8



3. Explain Relative stiffness. Distribution factor and carry over.
- Solve by moment distribution method and draw final bending moment diagram
(AB = BC = CD = DE = EF = FG = 3M, Moment of inertia (I) is same)

2
8



4. (A) Explain redundant, equilibrium and deficit truss. 2

OR

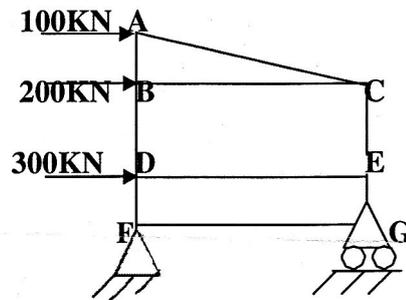
Write assumptions made in truss.

- (B) Write difference between frame and truss. 2

OR

Explain zero force in the members of the truss.

- (C) Find forces in all the members. $FG = 5M$, $AB = BD = DF = 2.5 M$ 6



5. (A) Compare structurally arch and beam having same span with suitable example and give your comment. 4

OR

“The sectional requirement for an arch is less than that of a beam of the same span and carrying the same load system”. – Prove it by suitable example.

- (B) Find the horizontal thrust at each end for the given three-hinge semicircle arch and moment at 5 M and 10 M from right support. 6

