	<p style="text-align: center;">ADAMAS UNIVERSITY END-SEMESTER EXAMINATION : JANUARY 2021 (Academic Session: 2020 – 21)</p>		
Name of the Program: (Example: B. Sc./BBA/MA/B.Tech.)	B.Tech.	Semester: (I/III/ V/ VII/IX)	V
Paper Title :	Structural Analysis - II	Paper Code:	ECE43103
Maximum Marks :	40	Time duration:	3 Hrs.
Total No of questions:	09	Total No of Pages:	02
(Any other information for the student may be mentioned here)			

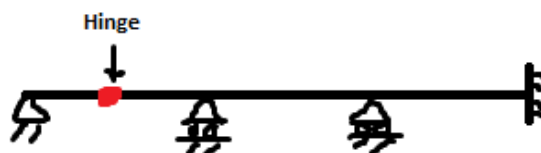
Answer all the Groups

Group A

Answer all the questions of the following

$5 \times 1 = 5$

1. a) Find the kinematic indeterminacy of the beam.



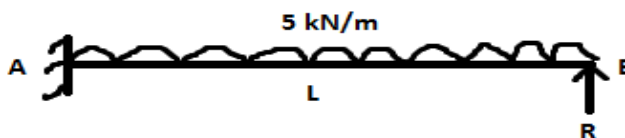
- b) What is the number of independent equations to be satisfied for static equilibrium in a plane(2D) structure?
- c) A suspended bridge with a 2-hinged stiffening girder is of ____ degree of indeterminacy.
- d) If a fixed beam (AB) of uniform cross section of length of $2L$. A moment (M) acting on mid span(C) (assume roller support at C). What will be the total stiffness of AB beam?
- e) A fixed beam subjected to a udl of w kN/m. What will be the fixed end moment?

GROUP –B

Answer any three of the following

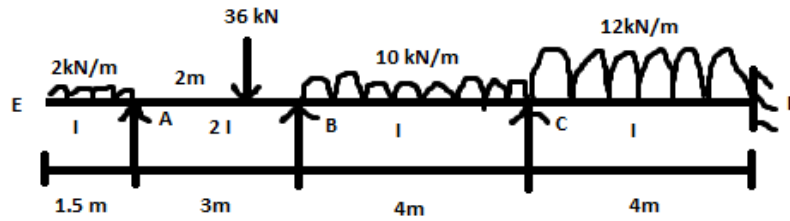
$3 \times 5 = 15$

2. Find the reaction at B in the following beam of length L (Use Castigliano 2nd theorem).



3. A two-hinged semi-circular arch of radius R carries a concentrated load of W at the crown. Derive the expression of horizontal thrust.
4. A two hinged parabolic arch hinged at the springs at the same level, has a horizontal span of 20m and a central rise of 2m . Draw the influence line diagram for horizontal thrust at support.

5. Determine the moments at the supports of the continuous beam shown below. Also draw the BMD for the beam.

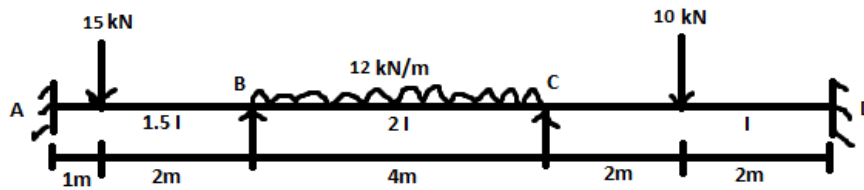


GROUP –C

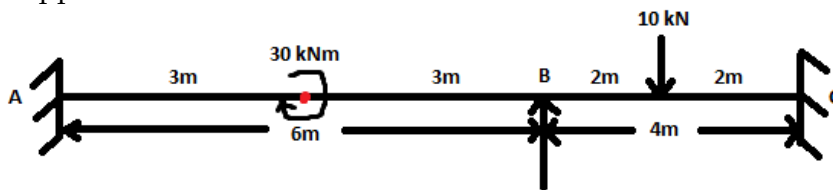
Answer any two of the following

$2 \times 10 = 20$

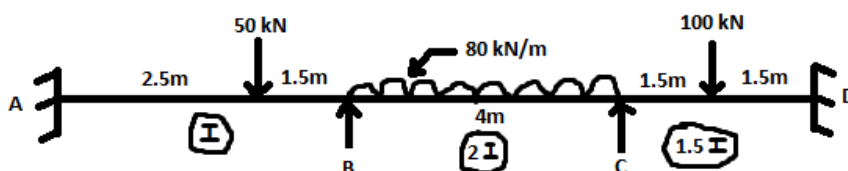
6. Determine the support moments of a continuous girder as shown in figure below by moment distribution method.



7. Analyze the continuous beam using slope-deflection method and show BMD and support reactions.



8. Determine the support moments at A, B, C & D for the continuous beam using Kani's method.



9. A fixed beam of span L carries a point load W eccentrically on the span at a distance "a" from the left end and "b" from right end. Find the fixing moments at the ends of the beam using Column Analogy Method.