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**Question Paper Code: 56101**

B.E./B.Tech. DEGREE EXAMINATION, DEC 2020

Sixth Semester

Civil Engineering

15UCE601- STRUCTURAL ANALYSIS – II

(Regulation 2015)

Duration: 1.15 hrs

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

**(Answer any six of the following questions)**

1. The shape factor of circular section is ----- CO1- R  
(a) 1 (b) 1.7 (c) 2 (d) 2.5
2. Shape factor for a rectangular section, is CO1- R  
(a) 1.4 (b) 1.6 (c) 2 (d) 2.5
3. Static indeterminacy value of a continuous beam ABC, fixed at A and hinged at B and C is CO2- R  
(a) 1 (b) 2 (c) 3 (d) 4
4.  $[P]=[k][\Delta]$  where k is CO2- R  
(a) Flexibility (b) stiffness (c) Load (d) Displacement
5. The static indeterminacy value for a beam fixed at both ends is --- CO3- R  
(a) 0 (b) 1 (c) 2 (d) 3
6. Flexibility method in structural analysis is also known as CO3- R  
(a) Slope-deflection method (b) Moment-distribution method  
(c) Consistent-deformation method (d) Stiffness method
7. A triangular plane stress element has \_\_\_\_\_ degree's of freedom. CO4- R  
(a) 3 (b) 4 (c) 5 (d) 6

8. Most of the FEM software use CO4- R  
 (a) displacement method (b) force method (c) stress method (d) hybrid method
9. \_\_\_\_\_ is a three dimensional assemblage of line members, CO5- R  
 each member being joined at its ends.  
 (a) Space frame (b) Penta frame (c) Cantilever beam (d) Propped beam
10. The process of uniting all the elements together is known as ----- CO5- R  
 (a) discretization (b) assemblage (c) zonation (d) transformation

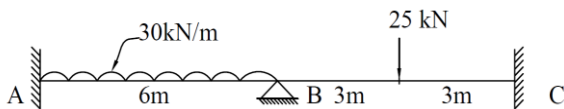
PART – B (3 x 8= 24 Marks)

**(Answer any three of the following questions)**

11. Determine the shape factor and plastic moment of the symmetrical steel CO1- App (8)  
 section (I section). Assume yield stress of steel is 250 MPa.  
 Total depth=600 mm  
 Breadth of each flange= 250 mm  
 Depth of each flange =30 mm  
 Thickness of web= 12 mm
12. Analyze the beam by matrix stiffness method. CO2- Ana (8)



13. Analyze the beam by matrix flexibility method. CO3- Ana (8)



14. Describe the procedure for discretisation of a structure. CO4- U (8)
15. A suspension cable is supported at 2 points 25m apart. The left support is CO5- U (8)  
 2.5m above the right support. The cable is loaded with a uniformly  
 distributed load of 10KN/m throughout the span. The maximum dip in the  
 cable from the left support is 4m. Find the maximum and minimum  
 tensions in the cable.