Total No. of Questions – [3]

Total No. of Printed Pages: 2

P.R. No.	

PAPER CODE	U222-225(ESE)

May 2022 (ENDSEM) EXAM

S.Y. B. TECH. (SEMESTER - II)

COURSE NAME: Mechanics of Solids-II – CIVIL ENGG.

COURSE CODE: CVUA22205

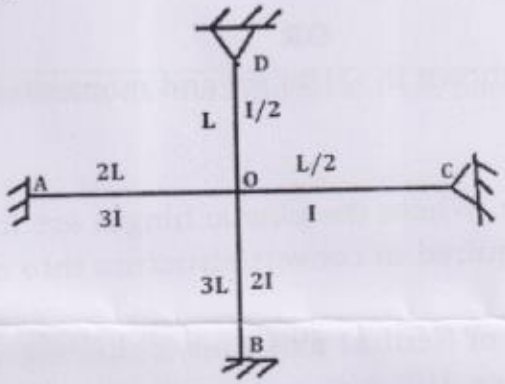
(PATTERN 2020)

Time: [1Hr] [Max. Marks: 30]

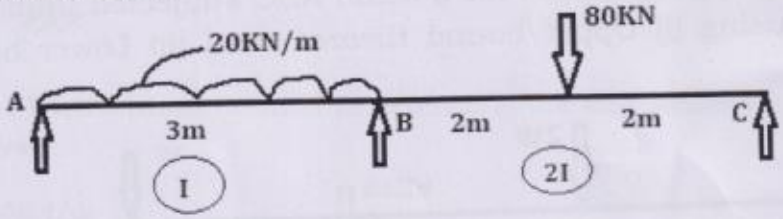
(*) Instructions to candidates:

1) **Figures to the right indicate full marks.**
2) **'a' part of every question is compulsory**
3) **Use of scientific calculator is allowed**
4) **Use suitable data where ever required**

Q.1 a) Evaluate the distribution factor for the four beams are meeting at a joint 'O' as shown. [4]

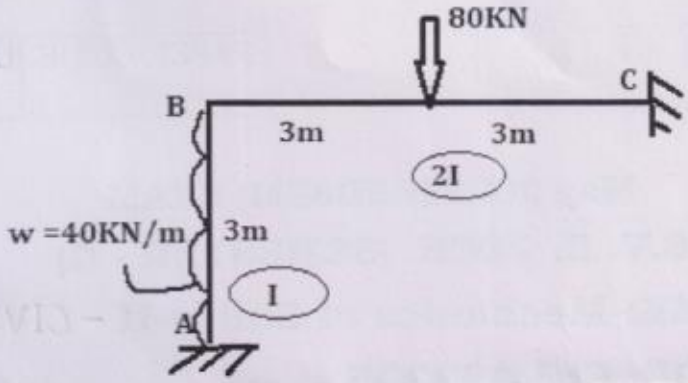


b) Apply Moment Distribution method to determine the end moments for the beam shown. [6]



OR

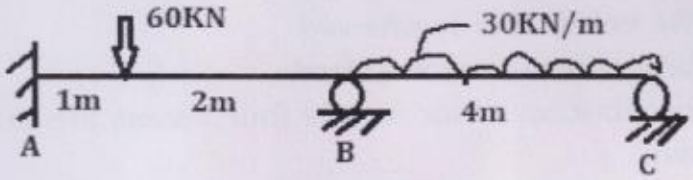
b) Analyze the frame shown for end moments using Moment Distribution Method.



[6]

Q2 a) Illustrate through neat figures; how degree of freedom is arrested in plane structures by providing fix support, hinge support and roller support. [4]

b) Analyse the beam shown for end moments using Stiffness Method. [6]



OR

b) Analyse the frame shown in Q1(b) for end moments using Stiffness Method. [6]

Q.3 a) Define Plastic Hinge. Where the plastic hinges are formed and how many in number is required to convert structure into mechanisms. [4]

b) Determine the shift of Neutral axis and evaluate Shape Factor for 'T' section having flange 100 mm x 20mm, web 100 mm x 20 mm and overall depth of 120mm with its I_{NA} = 5333333.0 mm^4 [6]

OR

b) Determine the Collapse load for a beam ABC subjected to loading as shown by using (i) Upper bound theorem and (ii) Lower bound theorem. [6]