

Reg. No:

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech II Year II Semester Supplementary Examinations February-2022
STRUCTURAL ANALYSIS
(Civil Engineering)

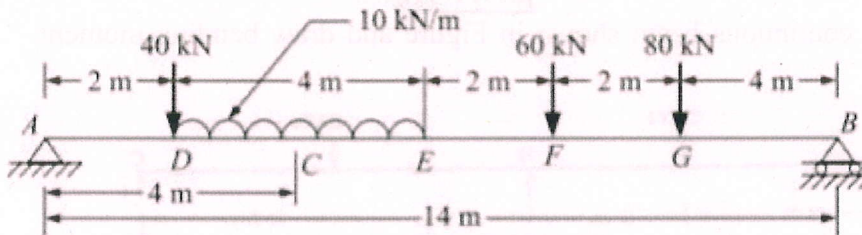
Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

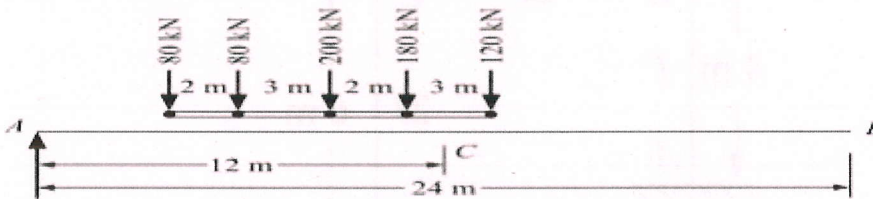
UNIT-I

- 1 Using influence line diagrams determine the shear force and bending moment at section C in the simply supported beam shown in Figure. L3 12M

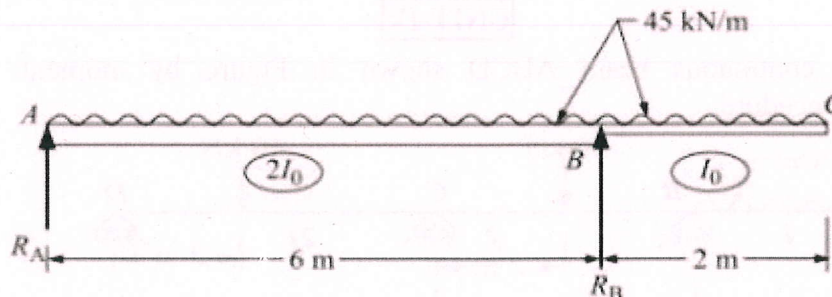


OR

- 2 A train of 5 wheel loads as shown in Figure crosses a simply supported beam of span 24 m from left to right. Calculate the maximum positive and negative shear force values at the Centre of the span and the absolute maximum bending moment anywhere in the span. L3 12M

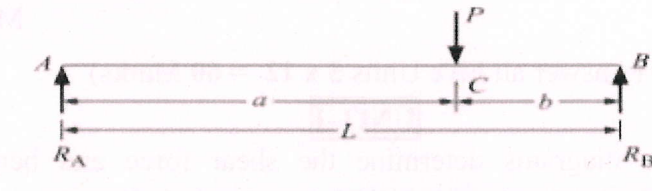
**UNIT-II**

- 3 Determine the deflection at free end of the overhanging beam shown in Figure. Use unit load method. L1 12M



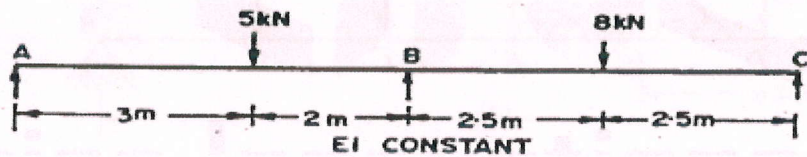
OR

- 4 a Derive castigliano's theorem; L2 6M
 b A simply supported beam of span L , carries a concentrated load P at a distance a from left hand side support as shown in Figure. Using castigliano's theorems determine the deflection under the load. Assume uniform flexural rigidity. L2 6M



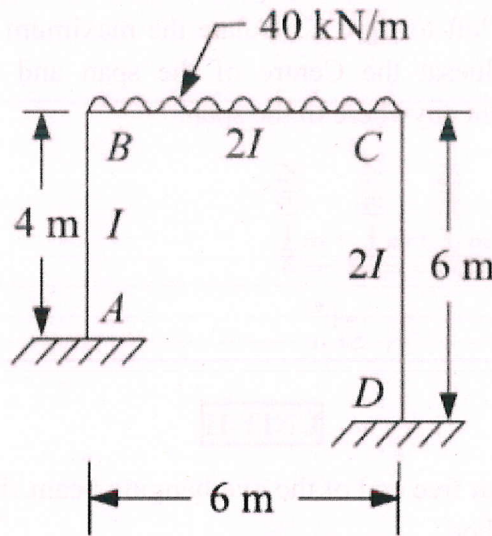
UNIT-III

- 5 Analyse the continuous beam shown in Figure and draw bending moment diagram. L3 12M



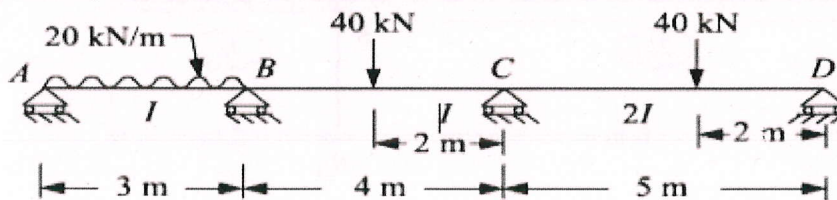
OR

- 6 Analyse the frame shown in Figure and draw bending moment diagram. L3 12M



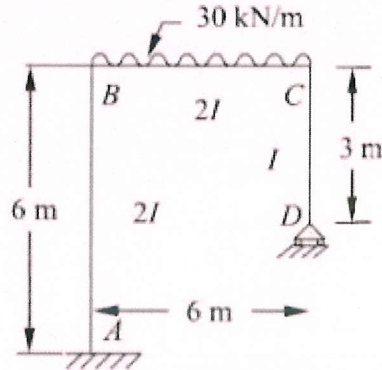
UNIT-IV

- 7 Analyse the continuous beam ABCD shown in Figure by moment distribution procedure. L2 12M



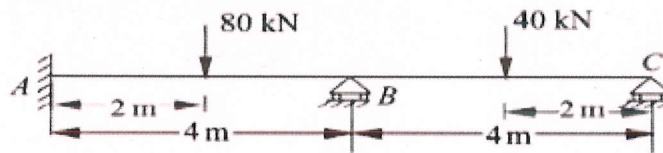
OR

- 8 Analyse the rigid jointed frame shown in Figure by moment distribution method and draw bending moment diagram. L3 12M



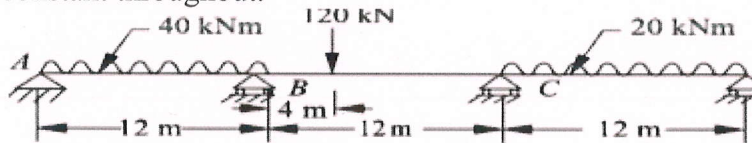
UNIT-V

- 9 Analyse the continuous beam shown in Figure, if the downward settlement of supports B and C are 10 mm and 5 mm, respectively. Take $EI = 184 \times 1011 \text{ Nmm}^2$. Use flexibility matrix method L3 12M



OR

- 10 Analyse the continuous beam shown in Figure by stiffness matrix method. L1 12M
Take EI constant throughout.



*** END ***

