[Total No. of Printed Pages:3] **CODE NO:- Z-218**

FACULTY OF CIVIL ENGINEERING

T.E (Civil) - Year Examination June – 2015

Theory of Structure - II

(Revised)

[Time: Three *Hours*] **[Max. Marks: 80]**

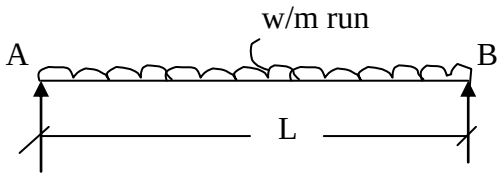
"Please check whether you have got the right question paper."

i) Answer only three questions from each section

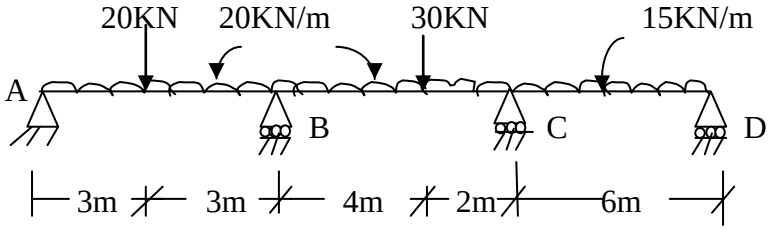
ii) Assume suitable data if required and it clearly

SECTION A

Q.1 Use castigliano's second theorem to find reaction at the propped end 10



Q.2 Analyse the beam as shown in fig. if support B sinks by 40mm↓ and support c sinks by 80mm↓ draw SFD, BMD and elastic curve. Take $E = 210GPa, I = 3 \times 10^8 MM^4$. USE SLOPE DEFLECTION METHOD. 15



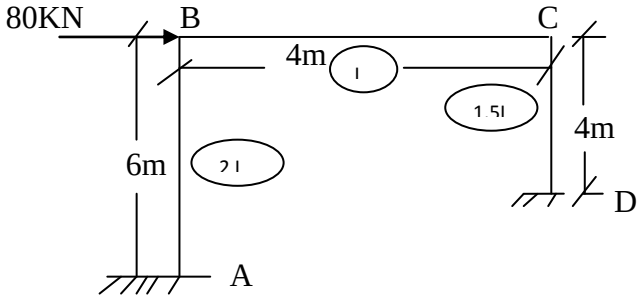
Q.3 a) define shape factor and find shape factor for a triangle of base b and height h 05

b) What are the important features of a plastic hinge 05

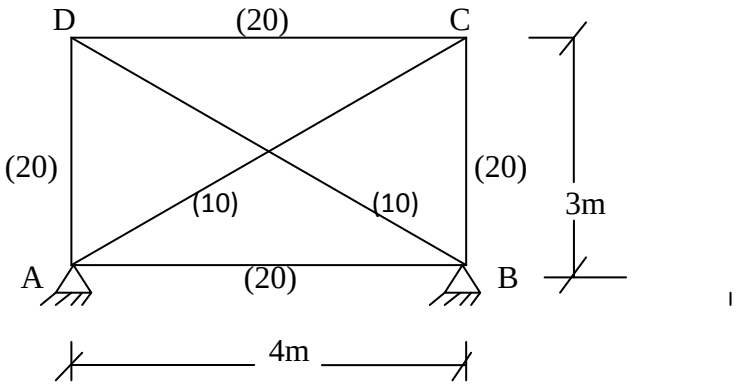
c) What are the assumptions are made in plastic theory 05

OR

Q.3 Analyze the frame as shown in fig. by column analogy method and draw bending moment diagram 15

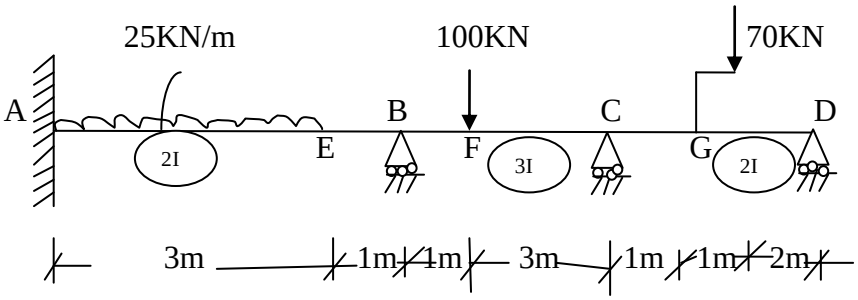


Q.4 A pin jointed rectangular truss is as shown in fig. the members AD is least to be added and is short by 5mm. Find the forces in all the members when it is forced into position. Take $E = 210\ GPa$. Figures in the bracket indicate cross sectional area of the members in cm^2 15



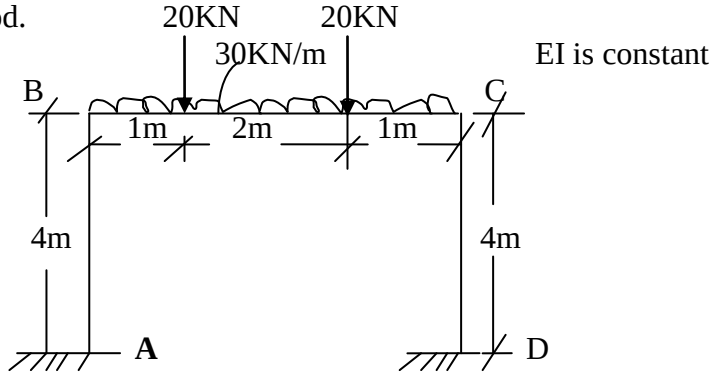
Q.5 a) State and explain castigliano's second theorem 03

b) Draw SFD, BMD for the beam as shown in fig. by slope deflection method. Support c sinks by 12mm↓ 12



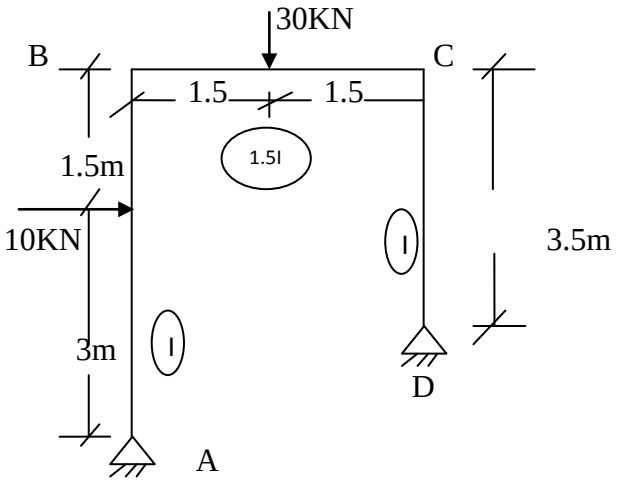
SECTION B

Q.6 Find the end moments of the members of the portal frame as shown in fig. by using the moment distribution method. 10

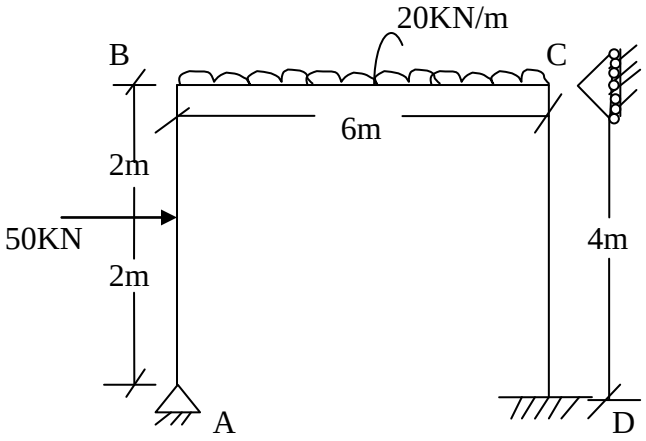


Q.7 Two hinged parabolic arch of span 24m and rise 5m is subjected to a rise of temp by 20^0c. Find the horizontal thrust caused in the arch. Take $E = 2 \times 10^5 MPa$ & $\alpha = 11 \times 10^{-6}/^0c$ and M.I at the crown is $100 \times 10^4 cm^4$ 15

Q.8 Analyze the frame by kani's method 15



Q.9 Analyze the portal frame as shown in fig. by using moment distribution method. 15



Q.10 Analyze the continuous beam as shown in fig. if the support C sinks by 5mm. take $E = 200KN/mm^2$ and $M.I. = 310^7 mm^4$ 15