[Total No. of Printed Pages: 3] **CODE NO:- U- 208**

FACULTY OF CIVIL ENGINEERING

T.E.(Civil) Examination - DEC - 2014

Theory of Structure -II (Revised)

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

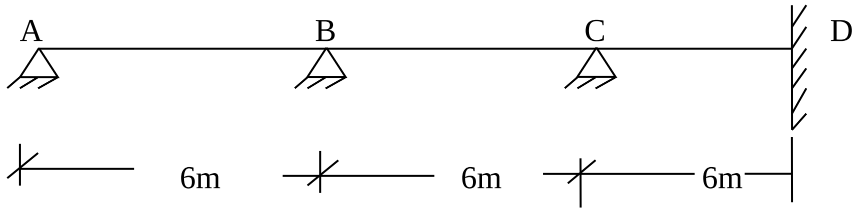
"Please check whether you have got the right question paper."

N.B 1) . Question no, 1 from section A& Question no,6 from section B are compulsory. Attempt any Two questions form the remaining questions from each section

2) Assume suitable data if required and state it clearly.

SECTION A

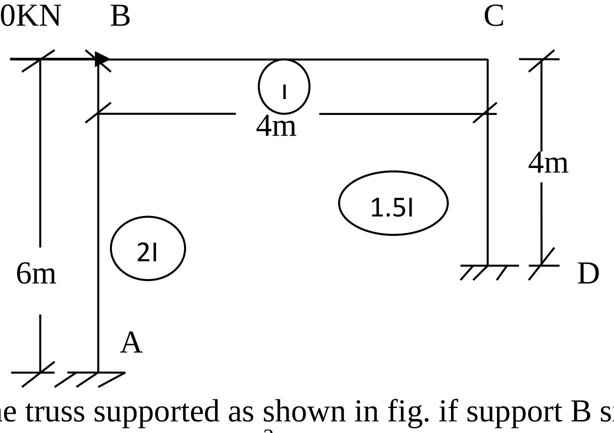
Q.1 Analyze the continuous beam as shown in fig by slope deflection method. The support B and C sinks 12mm and 6mm respectively and the support D rotates through an anticlockwise angle of 0.1 radian. There are no loads on the beam. Take $E = 2 \times 10^5 N/mm^2$ & $I = 4 \times 10^7 mm^4$ 10



Q.2 15

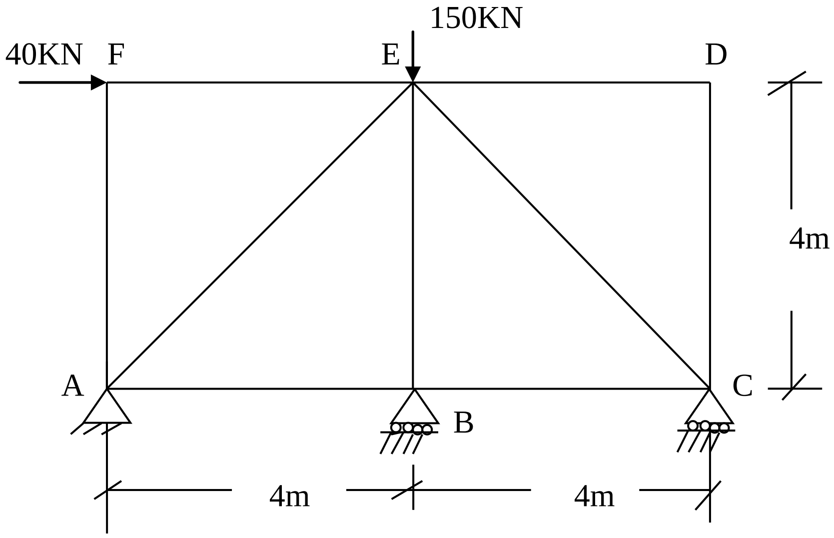
a) State and explain second theorem of Castigliano's
b) Write a note on shape factor and find shape factor for circle of diameter D.
c) Differentiate between rigid plane frames and pin jointed plane trusses.

Q.3 Analyze the frame by column analogy method. 15

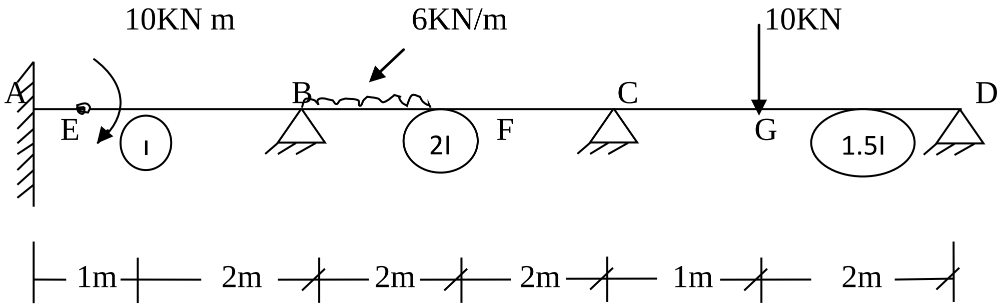


Q.4 Analyze the truss supported as shown in fig. if support B sinks by 5mm. take E = 200GPa and c/s area of each member = $400mm^2$ 15

8f02b0d3392d1fcae61a13da8385fc0f



Q.5 Analyze the beam by using slope deflection method. 15



SECTION B

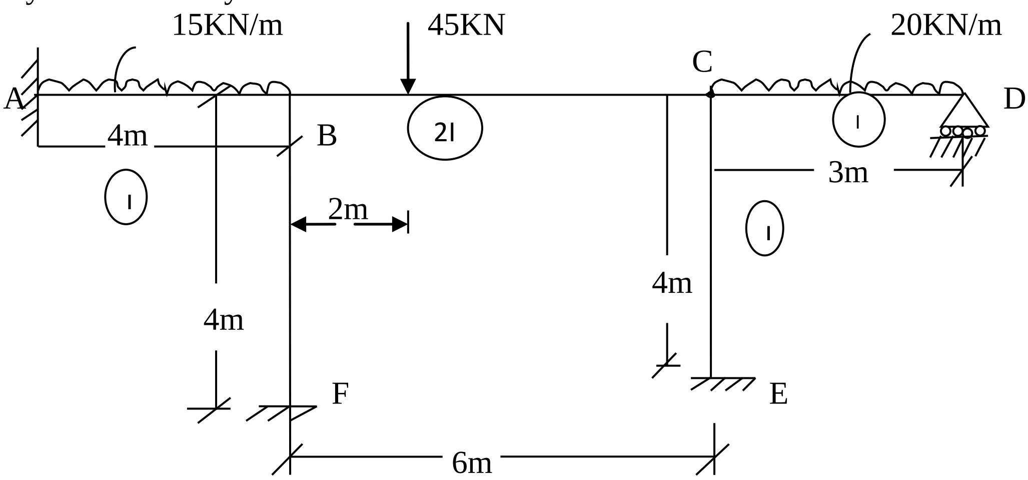
Q.6 A Explain in detail from the following terms. 06

i) Effect of rib shortening in two hinged arch.

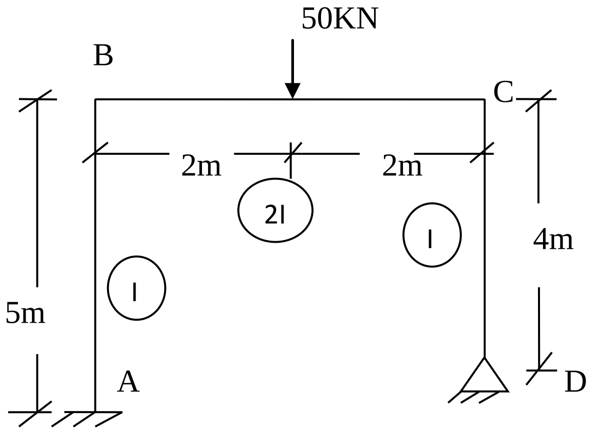
ii) Temp effect in two hinged arch

B State and explain the moment distribution theorem. 04

Q.7 Analyze the frame by moment distribution method. Draw BMD. 15



Q.8 Analyze the portal frame by Kanis method. 15



Q.9 A two hinged parabolic arch of span 50m and rise 5m is subjected to a central concentrated load of 60kN. It has an elastic support which yields by 0.0001mm/KN. Take $E = \frac{200KN}{mm^2}$, $I = 5 \times 10^9 mm^4$ average area Am = 10000mm^2 $\alpha = 10 \times 10^{-6}/^0C$. And assuming secant variation calculates the horizontal thrust developed when the temp rises by 20^{0}C. 15

i) Neglecting rib shortening
ii) Considering rib shortening

Q.10 A continuous beam as shown in fig. if support B is sinks by 10mm, analyze the beam by moment distribution method & draw BMD. If $E = 2.1 \times 10^5 N/mm^2$ & $I = 85 \times 10^5 mm^4$ 15