Total No. of Questions : 5 Total No. of Printed Pages : 4

EI-194

B.E. (Vth Sem.) (CGPA) Civil Engg. Exam.-2015

THEORY OF STRUCTURE-I

Paper : CE-502

Time Allowed : Three Hours
Maximum Marks : 60

Note : Attempt all the questions.
All questions carry equal marks.

Unit-I

Q.I (a) Explain the castigliano's first theorem. 4

(b) The bend ABC shown in fig. 1 carries a concentrated load W at A. Find the vertical deflection of A. Assume uniform flexmal rigidity. 8

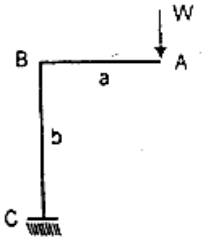


Fig. 1

or

Find the vertical deflection of the joint D of the frame shown in Fig. 2. All member have the same cross-sectional are A. The diagonal members are at 45° with the horizental.

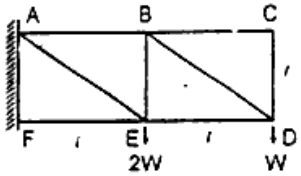
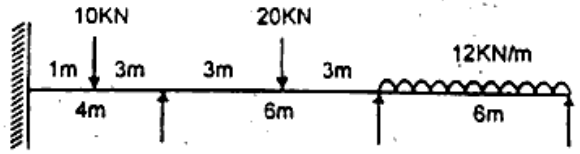


Fig.-2

Unit-II

Q.II Analyse the beam by theorem of three moments as shown in Fig. 3— 12



or

Analyse the beam as shown in Fig. 4 by moment distribution method. And draw B.M. diagram.

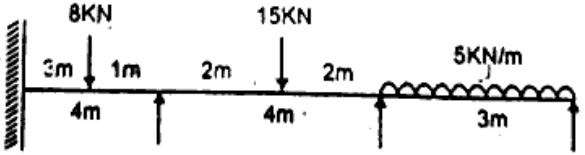


Fig. 4

Unit-III

Q.III Analyse the frame by slope deflection method shown in Fig. 5. 12

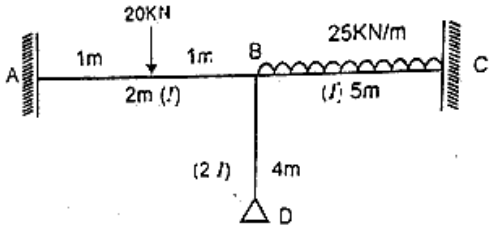


Fig. 5

or

Analyse the beam AB by column analogy method. Draw B.M. diagram. 12

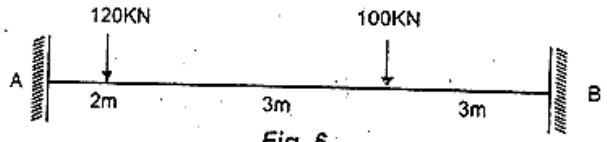


Fig. 6

Unit-IV

Q.IV A three-hinged arch has a span of 30 metres and a rise of 10M. The arch carries a udl of 50 KN/m on the left half of its span. It also carries two concentrated loads of 150 KN and 100 KN at 5 m and 10m from the right end. Determine the horizontal thrust at each support. 12

or

A cable of span l has its end at heights h_1 and h_2 above the lowest point of the cable. It carries a udl of w per unit run of the span. Determine the vertical and horizontal reactions at each end. 12

Unit-V

Q.V The load system shown in Fig. 7 moves from left to right on a girder of span 10m. Find the absolute maximum bending moment for the girder— 12

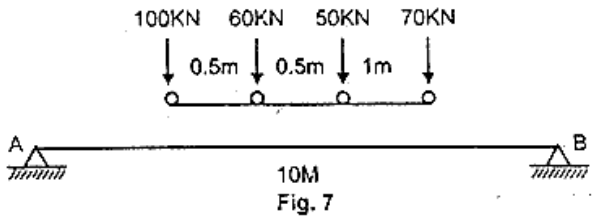


Fig. 7

or

Draw the influence line diagram (ILD) for reaction of A and bending moment at D for the beam shown in Fig.8.

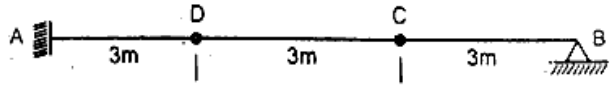


Fig. 8