

Time: Three Hours

Maximum Marks: 80

“Please check whether you have got the right question paper.”

- i) Attempt any three questions from each section.
- ii) Assume suitable data wherever necessary.

SECTION-A

Q.1 Draw SFD & BMD for the fixed beam shown in fig.01. 14

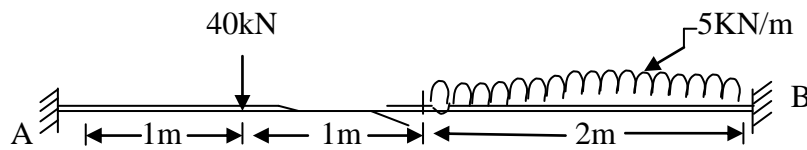


Fig:01

Q.2 Find the vertical and horizontal deflection of the joint G of truss shown in fig:02. The cross sectional area of CD & DE are each 2000 mm^2 and for others all member are each 1000 mm^2 . Take $E=200 \text{ KN/mm}^2$. 13

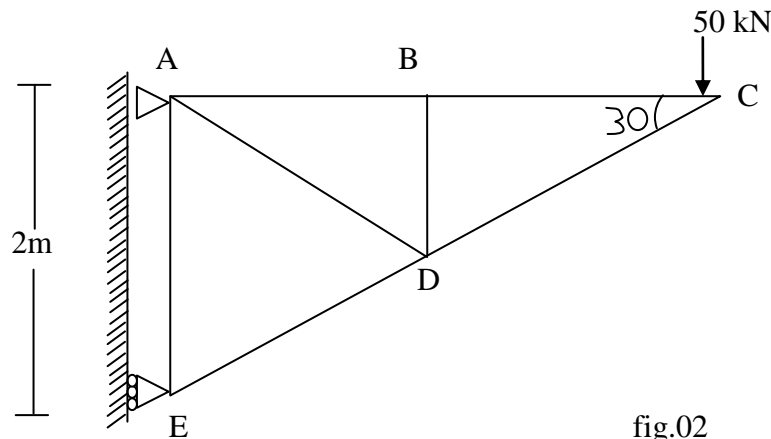


fig.02

Q.3 A simply supported beam of 2m span carries a point load of 20 kN at its mid point. Determine the maximum slope & deflection of the beam by using conjugate beam method. The flexural rigidity of the beam is $500 \times 10^9 \text{ N - mm}^2$. 13

Q.4 A circular plate 100 mm diameter is welded to another plate along periphery by 6mm fillet weld. Find the maximum twisting moment that can be applied to the plate in its plane, if the stress in the weld is not to be exceeding 110 N/mm^2 . 13

Q.5 Write a note on following (any two) 13

- 1) Conjugate beam method
- 2) Types of weld
- 3) Willot diagram.

SECTION-B

Q.6 For a continuous beam shown in fig.03 Draw the bending moment diagram & shear force diagram. 14

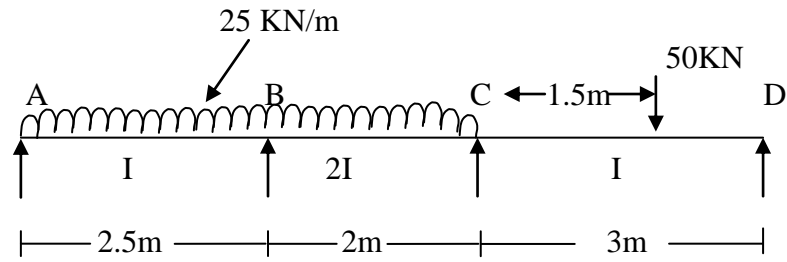


Fig.3

Q.7 For a three hinged parabolic arch loaded as shown in figure:04 find the normal thrust radial shear, and bending moment at distance 18m from left support. 13

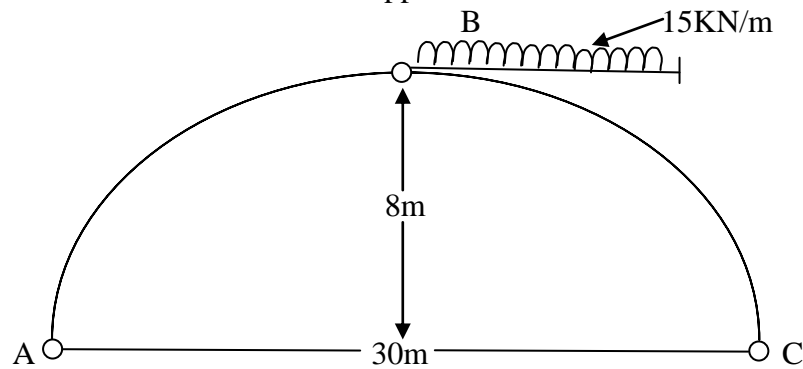


fig:04

Q.8 For a cable suspension bridge with three hinged stiffening girder having span of 120m & central dip of 10 m carries three point load each 50kN, 80kN, and 40kN at distance of 10m, 50m, & 80m respectively from the left support. Draw BMD for girder. 13

Q.9 Find the absolute maximum bending moment for the simply supported beam of span 24m, when the set of load shown in figure crosses the beam from left to right. 13

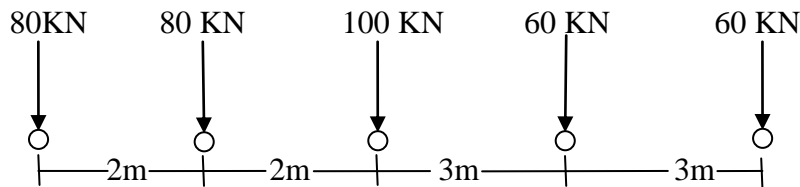


Fig:5

Q.10 Write a note on following (any two) 13

- 1) Linear arch
- 2) clapeyron theorem
- 3) Influence line diagram method.