



SF-8177

B. E. - II (Sem. IV) (Civil) Examination

May / June - 2011

Structural Analysis - II

(New Course)

Time : 3 Hours]

[Total Marks : 100

Instructions :

(1)

नीचे दर्शाविए निशानीवाणी विगतो उत्तरवही पर अवश्य कभवी.
Fillup strictly the details of signs on your answer book.

Name of the Examination :
B. E. - 2 (SEM. 4) (CIVIL)

Name of the Subject :
STRUCTURAL ANALYSIS - 2 (NEW)

Subject Code No. : 8 1 7 7 Section No. (1, 2,.....) : NIL

Seat No. :

Student's Signature

- (2) Attempt all questions.
- (3) Assume suitable data if required.
- (4) Figure on right side indicates full marks.

1 Attempt the following : (any two) 20

- (a) Determine all the reaction components and draw shear and moment diagrams for the beam of figure 1.

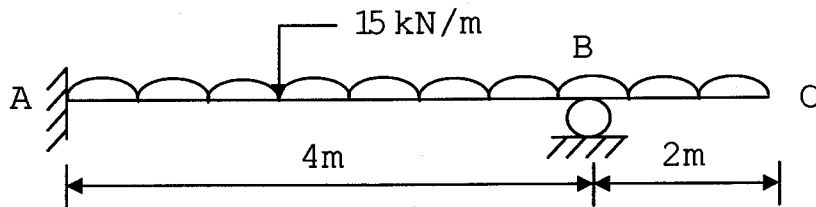


Fig. 1

- (b) Determine all the reaction components and draw shear and moment diagrams for the beam of figure 2 below by consistent deformation method.

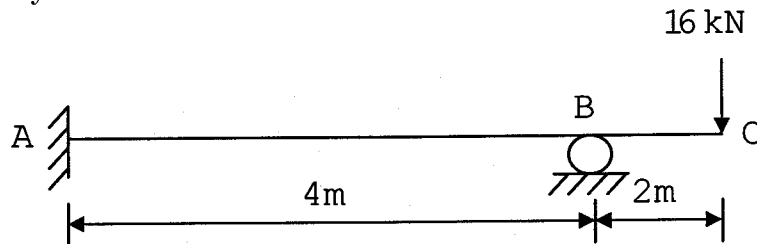


Fig. 2

- (c) Find the support moments at A, B, C, D for the continuous beam shown in figure 3 by using Kani's method.

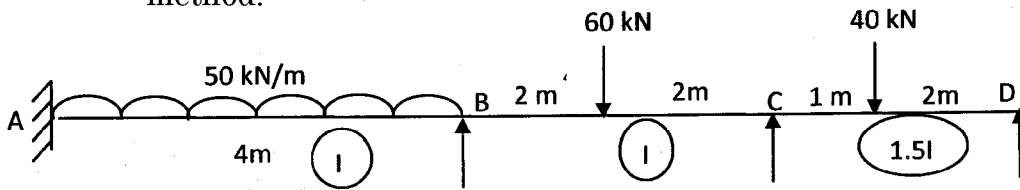


Fig. 3

2 Attempt the following questions : (any two) 20

- (a) A continuous beam ABC consists of two spans AB = 6m and BC = 4m, end A being fixed. The span AB carries a point load of 40 kN at 1m from A, while span BC carries a point load of 30 kN at 1m from C. $I_{ab} : I_{bc} = 1:2$. Find the support moments and draw the B.M. diagrams.

- (b) Find the fixing moments at the support and draw the bending moment diagram for the fixed beam shown in figure 4 if B sinks by 10 mm. Take $E = 200 \text{ kN/mm}^2$ and $I = 2.75 \times 10^7 \text{ mm}^4$.

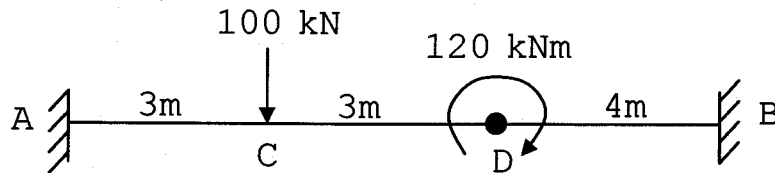


Fig. 4

- (c) Using three moment methods find the support moments and reactions for the continuous beam shown in figure 5. Draw S.F. and B.M. diagrams for the same.

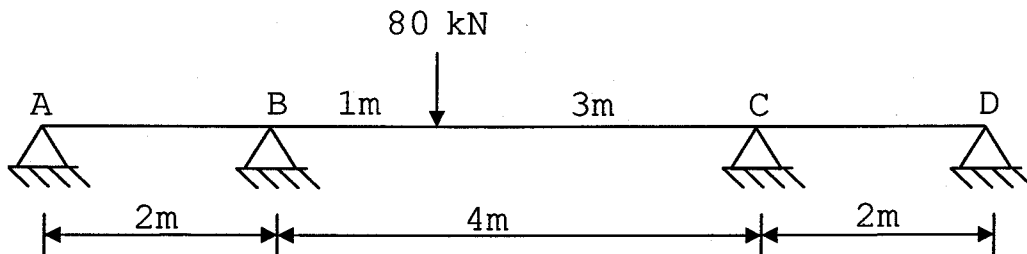


Fig. 5

- 3 Draw the B.M. diagram using moment distribution method 10
for the portal frame shown in figure 6.

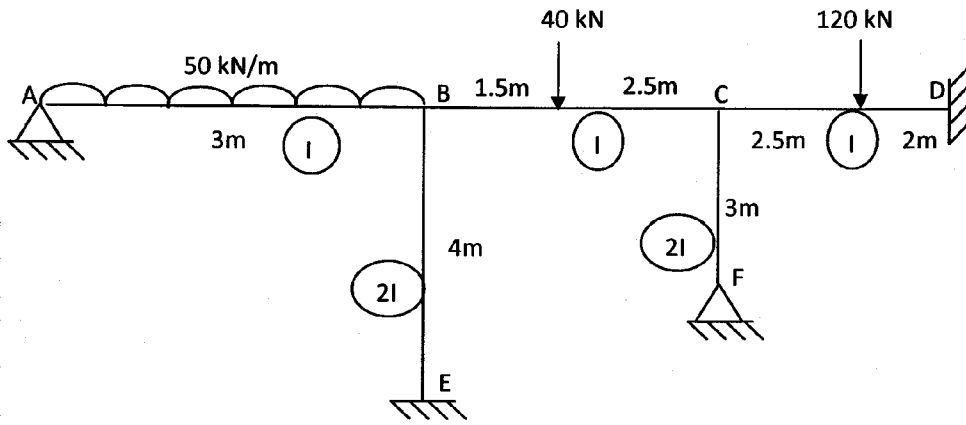


Fig. 6

- 4 Draw ILD for RA and shear force at 'C' for beam shown 16
in fig.7

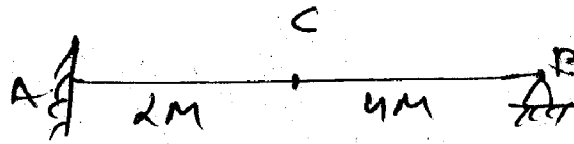


Fig. 7

- 5 Analyse the frame shown in figure 8 on slope deflection 17
method.

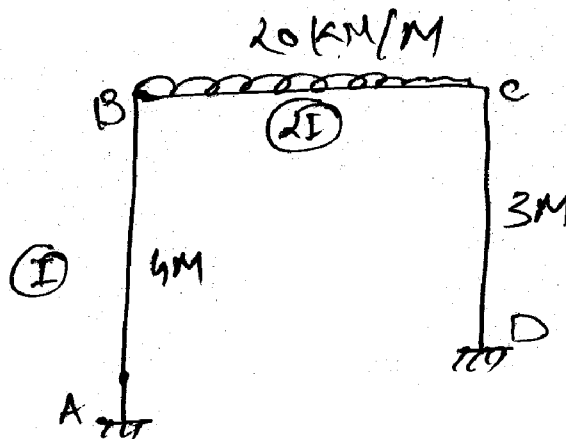


Fig. 8

OR

- 5 Analyze the beam by slope deflection method and draw SF and BM dia. (fig.9) 17

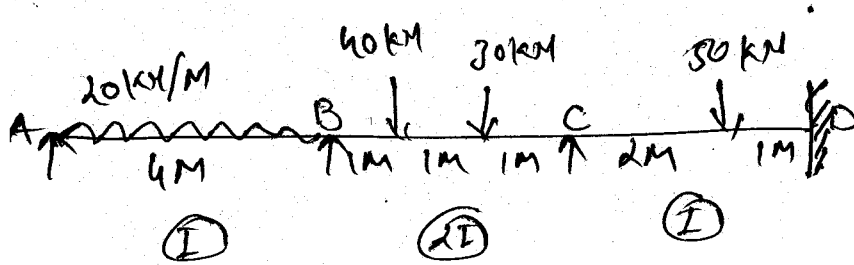


Fig. 9

- 6 Using energy principle solve the Beam shown in fig-10 and draw SF and BM dia. 17

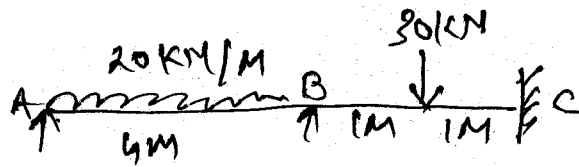


Fig. 10

OR

- 6 Using energy principle solve the Frame solve in fig.11. 17

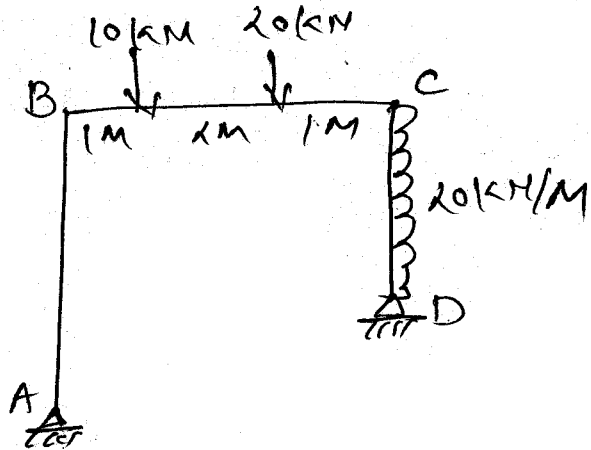


Fig. 11