

LIB
8/5/13 FN

Reg. No. :

Question Paper Code : 23233

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2013.

Fifth Semester

Civil Engineering

CE 1302 / CE 1303 / 070100046 – STRUCTURAL ANALYSIS – CLASSICAL
METHODS

(Regulation 2004 /2007)

(Common to B.E.(Part-Time) Fourth Semester, Civil Engineering Regulation 2005)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define the principle of virtual work.
2. What is Mohr's correction?
3. Define influence line.
4. State Muller Breslau's principle.
5. State examples for arch structure.
6. Name different types of arches.
7. What is sway in portal frames?
8. Write slope deflection equation.
9. Define distribution factor.
10. Define carry over factor.

PART B — (5 × 16 = 80 marks)

11. (a) Find vertical and horizontal deflection at C of the truss shown in figure 11(a). AE constant for all members. (16)

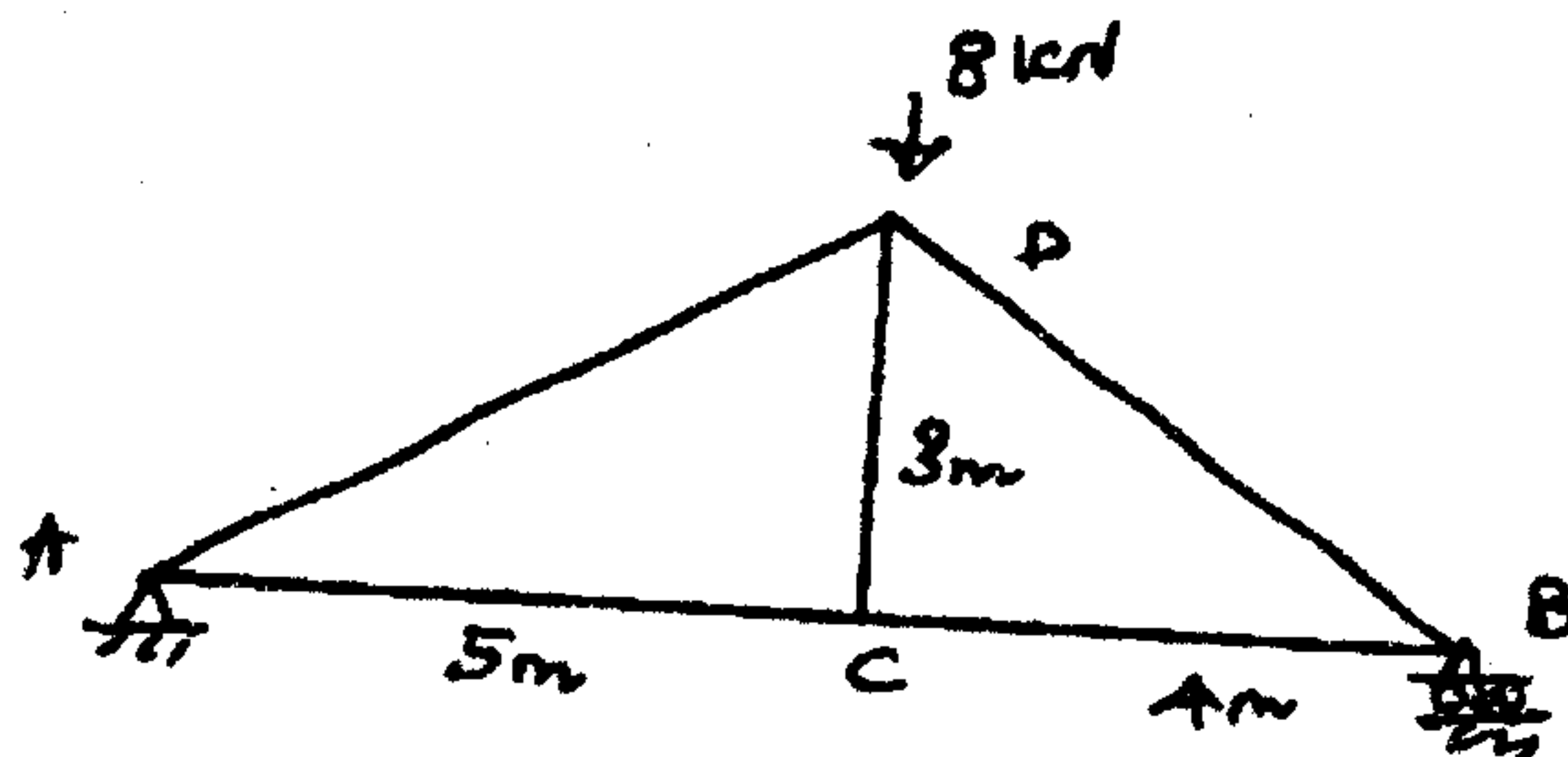


Figure 11(a)

Or

- (b) Find slope at D and Vertical displacement at E of the frame shown in figure 11(b). EI constant for all members. (16)

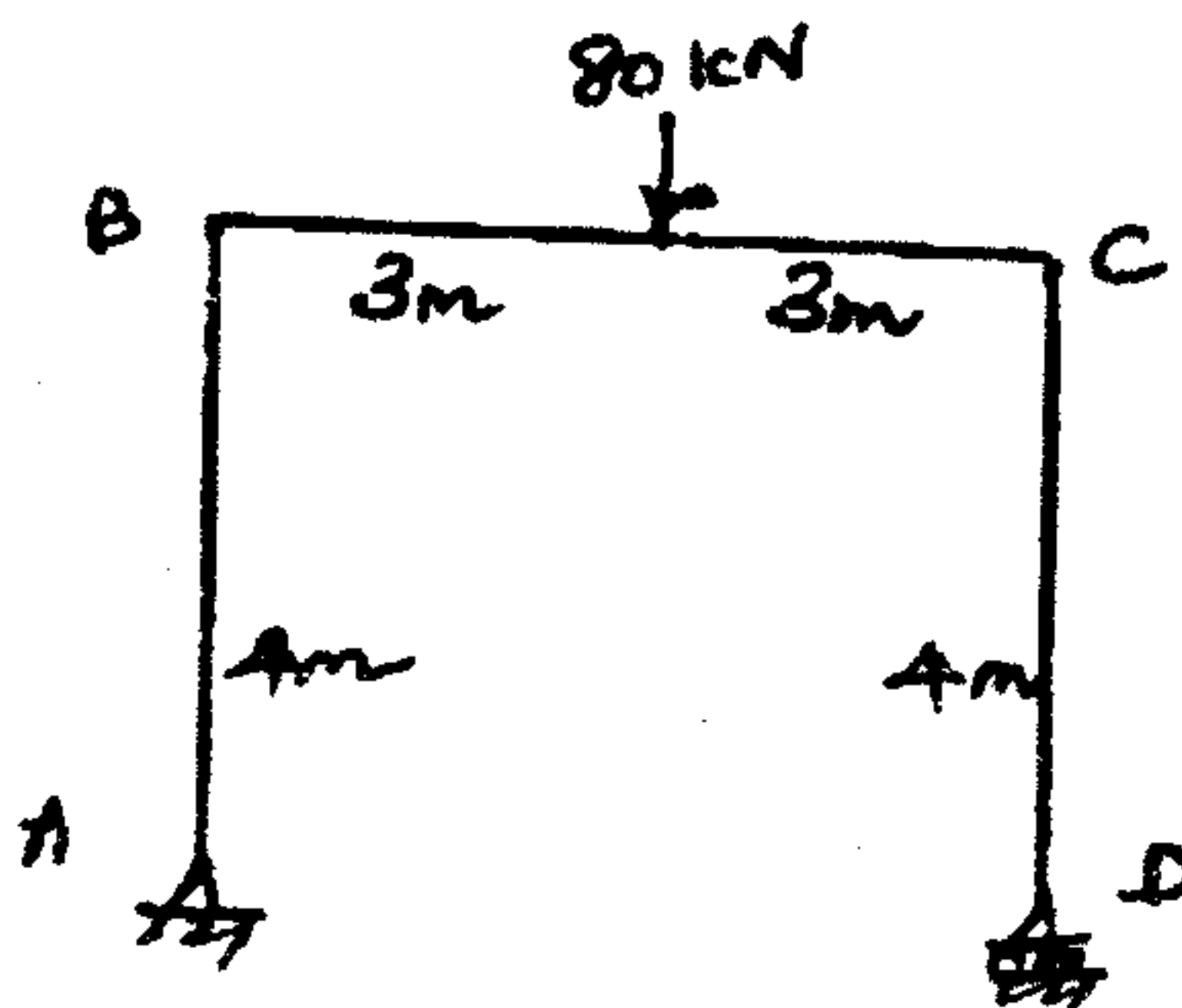


Figure 11(b)

12. (a) A chain of wheel loads shown in figure 12(a) passes through a simply supported beam of span 40m. Find absolute maximum bending moment and absolute maximum shear force. Also find maximum bending moment and shear force at a section 12m from left support. (16)

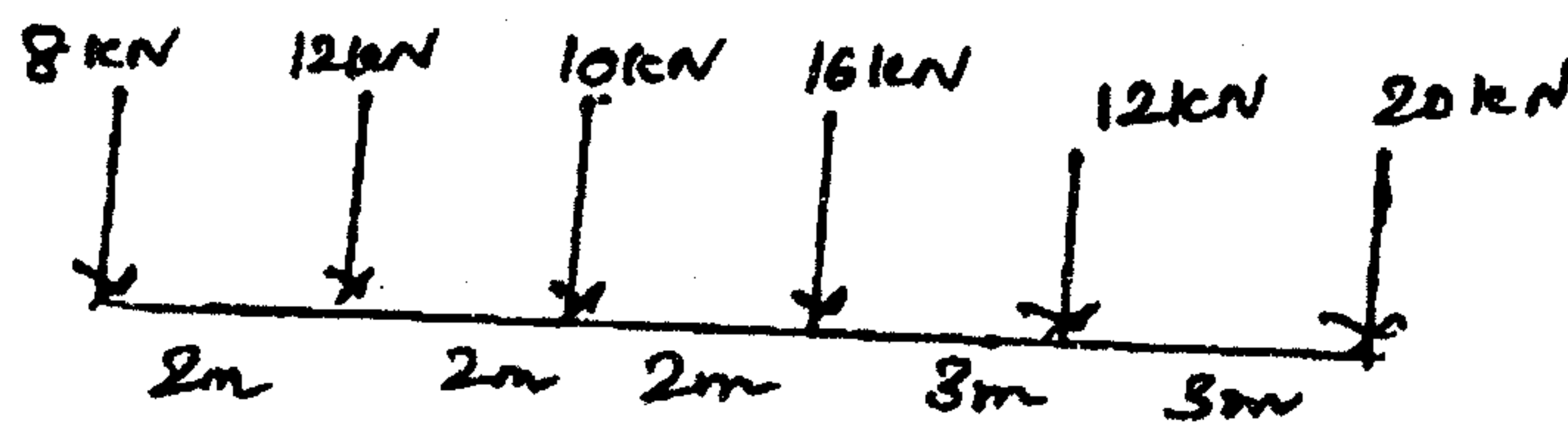


Figure 12(a)

Or

- (b) Draw ILD for BM and SF at D of the beam shown in figure 12(b). EI constant. (16)

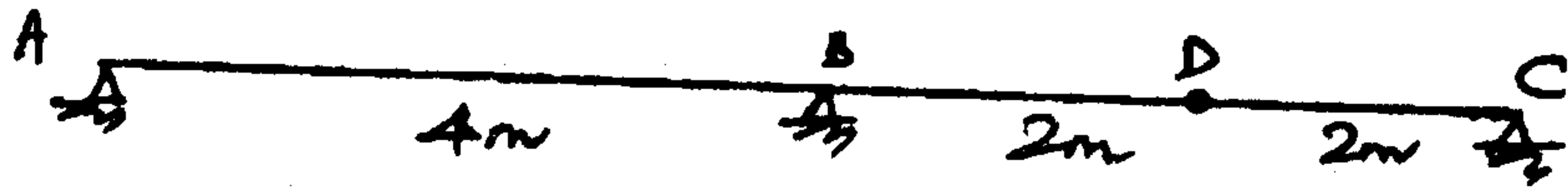


Figure 12(b)

13. (a) A symmetric three hinged parabolic arch has span 40m and rise 6m. It is subjected to UDL of 45 kN/m over the left of the arch. Find the reactions. Draw BMD. Calculate BM, radial shear and normal thrust at sections 24m and 30m from left support. (16)

Or

- (b) A symmetric two hinged parabolic arch has span 24m and rise 4m. It is subjected to a point load of 100 kN at a distance of 8m from left support. Calculate the reactions from first principles. Also draw the BMD. (16)

14. (a) Draw BMD and SFD of the beam shown in figure 14(a) by slope deflection method. EI constant. (16)

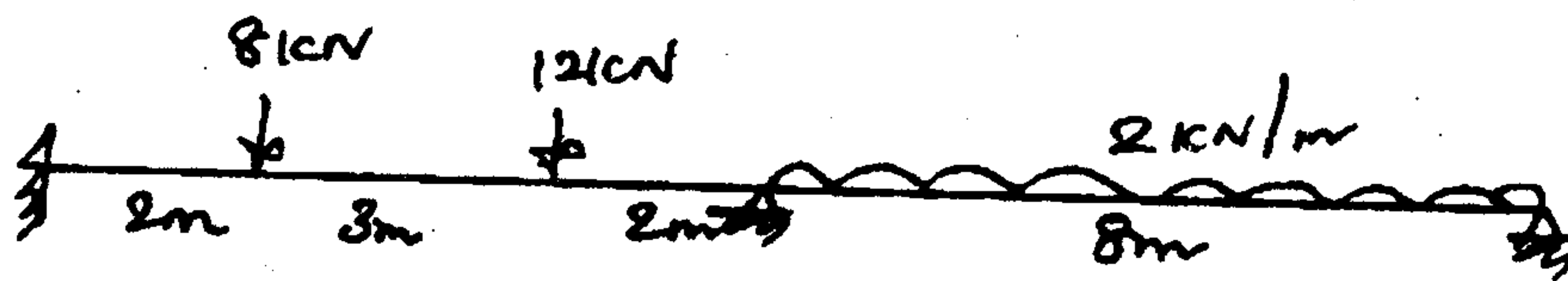


Figure 14(a)

Or

- (b) Draw BMD of the portal frame shown in figure 14(b) by slope deflection method. EI constant. (16)

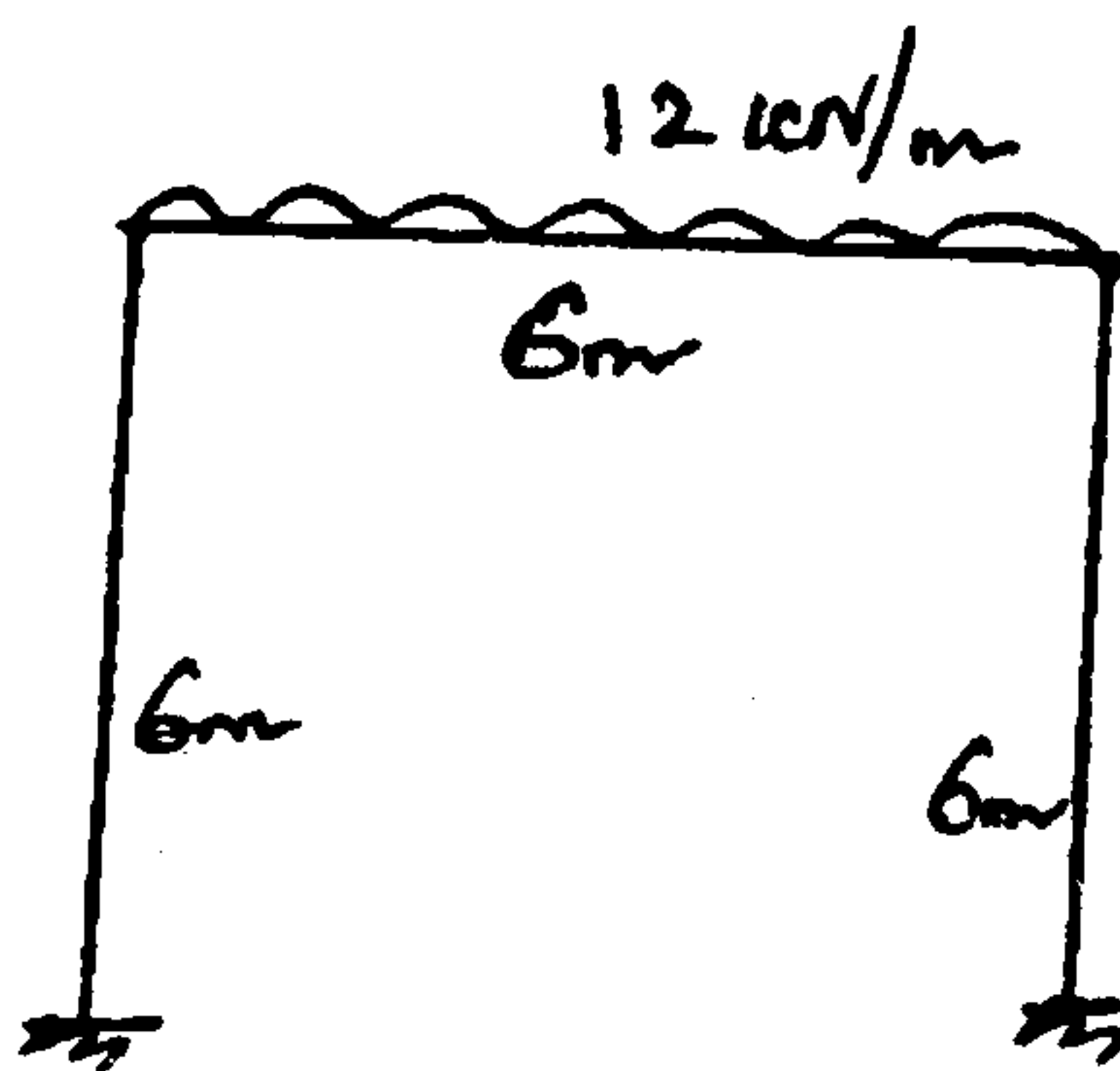


Figure 14(b)

15. (a) Draw BMD and SFD of the beam shown in figure 15(a) by moment distribution method. EI constant. (16)

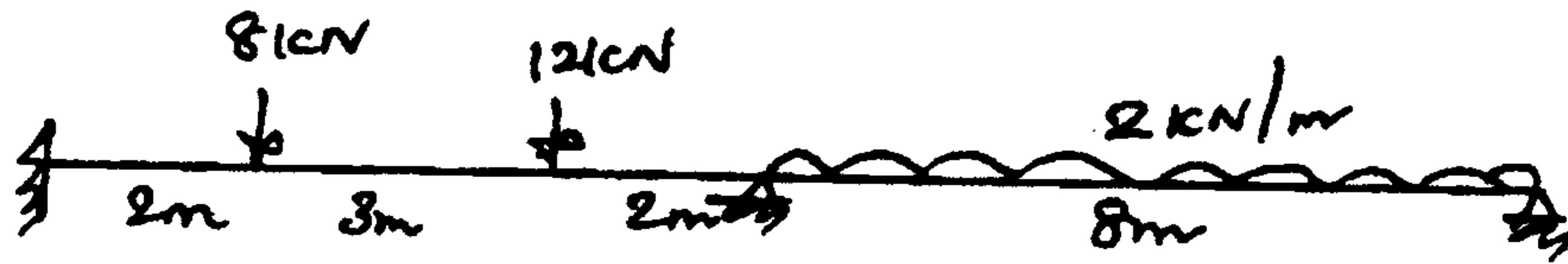


Figure 15(a)

Or

- (b) Draw BMD of the portal frame shown in figure 15(b) by moment distribution method. EI constant. (16)

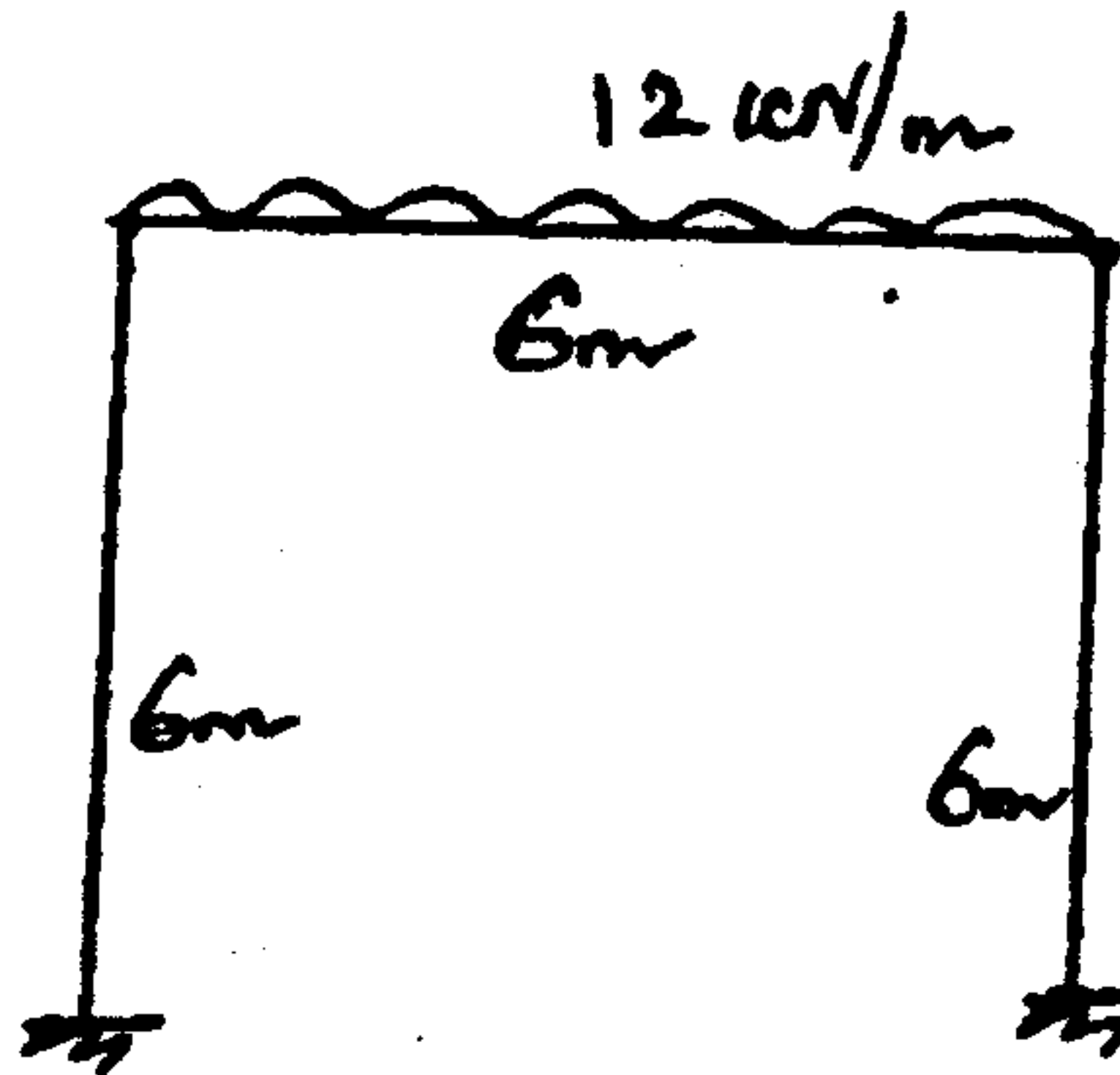


Figure 15(b)