

Roll No

CE-601

B.E. VI Semester

Examination, June 2017

Theory of Structures-II

Time : Three Hours

Maximum Marks : 70

- Note: i) Answer five questions. In each Unit has internal choice.
ii) All questions carry equal marks.

Unit - I

1. Determine the moments if support B yields by 10 mm under the given loading for the beam as shown in Figure-1. 14

$$E = 204,000 \text{ Mpa and } I = 30 \times 10^6 \text{ mm}^4.$$

(Use KANI's Method)

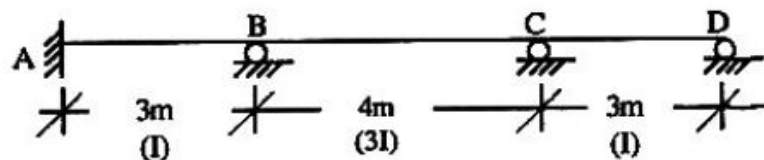


Figure - 1

OR

2. Determine the end moments of the member of the frame as shown in Figure-2 EI is constant. 14
(Use Moment Distribution Method)

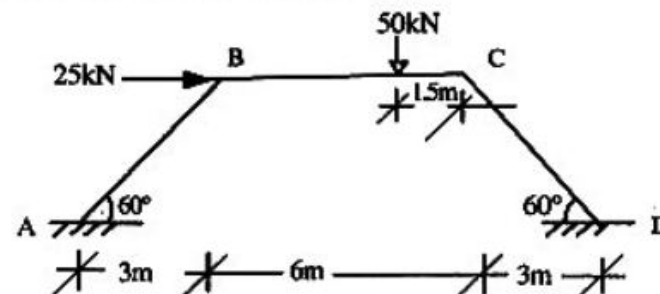


Figure-2

Unit - II

3. A portal frame ABCD with hinged feet has stanchions 4m high and a beam of 6m span. There is a horizontal point load of 40kN at B. While the beam carries a point load of 120kN at mid span. Using a load factor of 1.75, establish the collapse mechanism and calculate the collapse moment. 14

OR

4. A two-span continuous beam ABC each of span l is fixed at end A and simply supported at the other end C. Find the collapse load if it is subjected to u.d.l. of w /unit length. Take it that the beam is uniform and has plastic moment M_P . 14

Unit - III

5. Using Portal method, analyse the frame shown in Figure-3. 14

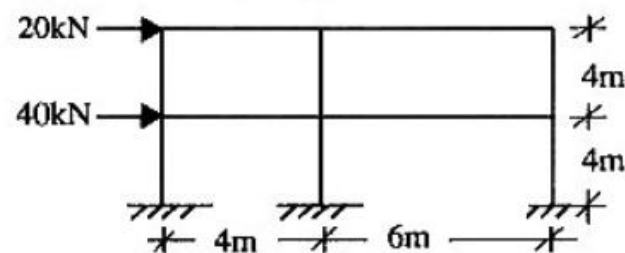


Figure-3

OR

6. Explain the portal method, cantilever method and factored method for analysis a building frame subjected to horizontal forces. 14

Unit - IV

7. Generate the Flexibility and Stiffness matrices with reference to co-ordinate 1 and 2 as shown in Figure-4. 14

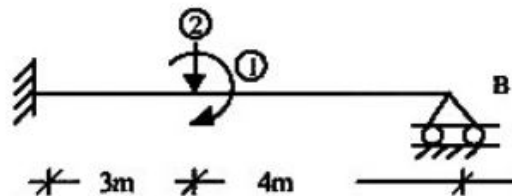
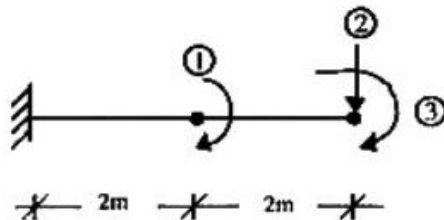


Figure-4

OR

8. Generate the flexibility matrix or stiffness matrix with reference to co-ordinates 1, 2 and 3 as shown in Figure-5. 14



Figur-5

Unit - V

- Analyze the beam using by Kani's method. Draw BMD. (Figure 6)

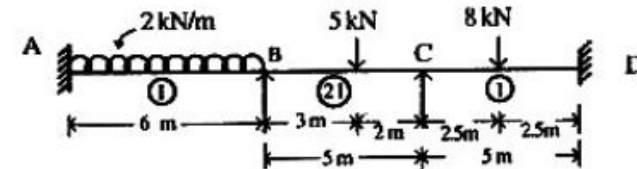


Figure 6

OR

- D. a) How the influence lines can be drawn qualitatively for determinate and indeterminate structures? Explain. 6
b) Explain Beam-Column element. 4
c) State and explain the Muller-Breslau principle. 4
