

B.Tech. CIVIL ENGINEERING (BTCLEVI)

Term-End Examination

December, 2016

00693

BICE-016 : STRUCTURAL ANALYSIS – III

Time : 3 hours

Maximum Marks : 70

Note : Answer any *five* questions. All questions carry equal marks. Assume missing data, if any. Use of scientific calculator is allowed.

1. Analyse the portal frame as shown in Figure 1 by moment distribution method.

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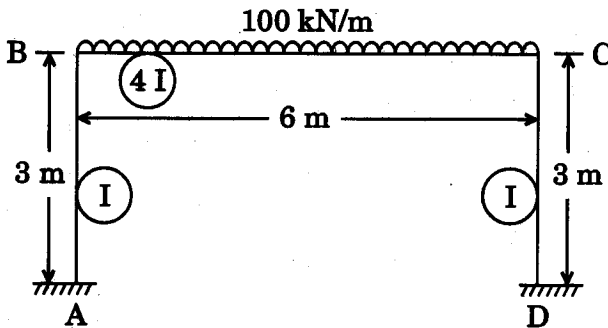


Figure 1

2. Analyse the continuous beam as shown in Figure 2 by moment distribution method. Support B sinks by 10 mm. Take $E = 200000 \text{ N/mm}^2$ and $I = 7.5 \times 10^6 \text{ mm}^4$.

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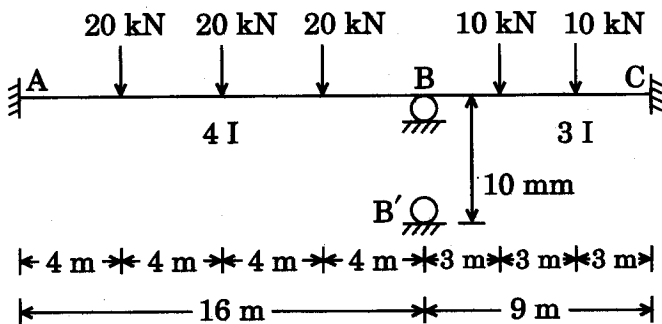


Figure 2

3. A circular arch of uniform cross-section is fixed at A and B and subjected to vertical loads as shown in Figure 3. Find the magnitudes of the vertical reactions at A and B.

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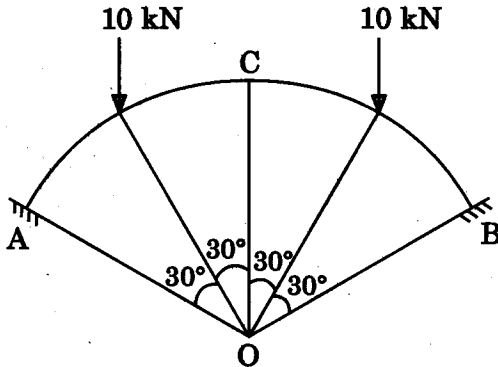


Figure 3

4. Find the support moment at A, B, C, D for the continuous beam as shown in Figure 4 by Kani's method.

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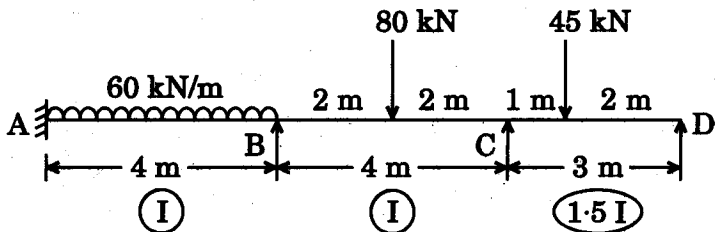


Figure 4

5. Find the collapse load intensity w_c for the fixed beam as shown in Figure 5.

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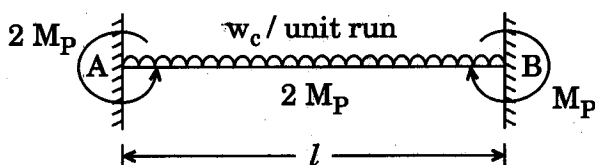


Figure 5

6. For the continuous beam of uniform section shown in Figure 6, find the value of M_P and draw the B.M. diagram at collapse. The given loads are collapse loads.

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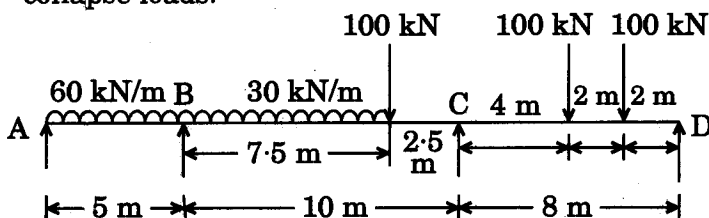


Figure 6

7. Analyse the continuous beam as shown in Figure 7 by force method. All the supports are at the same level.

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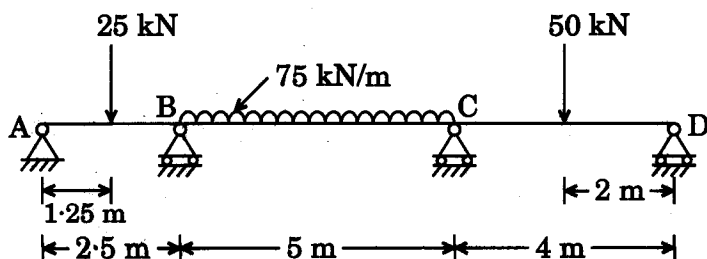


Figure 7