

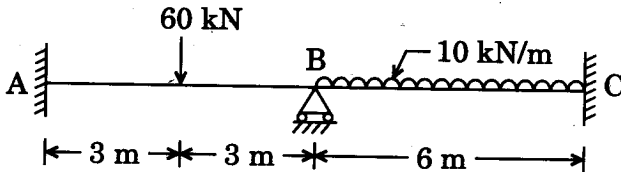
**B.Tech. CIVIL ENGINEERING (BTCLEVI)****Term-End Examination****June, 2018**

00663

**BICE-016 : STRUCTURAL ANALYSIS – III***Time : 3 hours**Maximum Marks : 70*

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

1. (a) Explain step-by-step procedure in moment distribution method. 7
- (b) Analyse the continuous beam as shown in Figure 1 by moment distribution method. 7

*Figure 1*

2. (a) What is influence line diagram ? Discuss its applications. 7
- (b) A parabolic tied arch carries a uniformly distributed load  $w$  per unit horizontal span. Find the tension in the tie rod. Assume modulus of elasticity for arch and tie material is same. 7

3. Find the equation for influence lines for reaction at A and moments at A and B for the fixed beam shown in Figure 2. 14

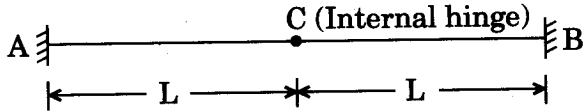


Figure 2

4. (a) Explain why Kani's method is better than moment distribution method. 7
- (b) Explain the terms — Rotation factors, Linear displacement factor, Restraint moments and Storey moment. 7
5. (a) Differentiate between lower bound method and upper bound method. 7
- (b) Determine the shape factor for diamond section. 7
6. (a) Explain the difference between portal method and cantilever method of analysis of a rigid frame for horizontal loads. 7

- (b) Analyse the rigid jointed portal frame as shown in Figure 3, for vertical loads only, using approximate method.

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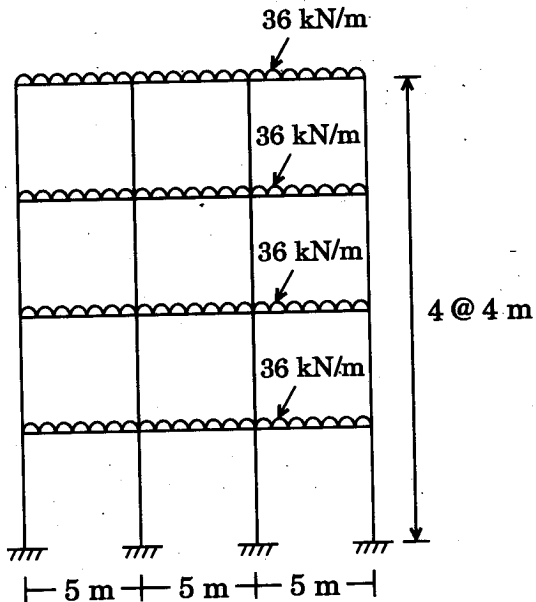


Figure 3

7. Analyse the continuous beam as shown in Figure 4 by force method and draw bending moment diagram.

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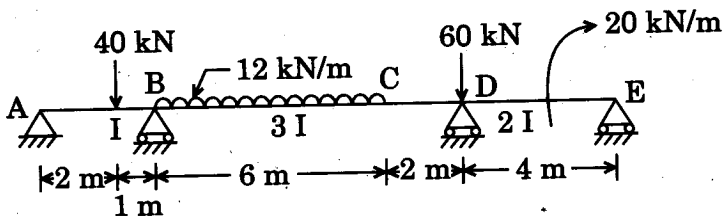


Figure 4