

**B.Tech. CIVIL ENGINEERING (BTCLEVI)**

**Term-End Examination**

**December, 2017**

00522

**BICEE-017 : ADVANCED STRUCTURAL ANALYSIS**

*Time : 3 hours*

*Maximum Marks : 70*

*Note : Attempt any five questions. Assume any missing data suitably.*

1. In Figure 1, wind loads transferred to joints A, D and G are equal to 12 kN, 24 kN and 24 kN respectively. Analyse the frame by Portal Method.

14

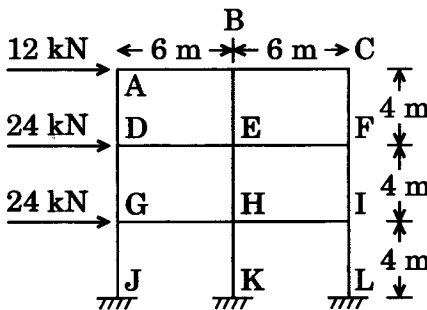
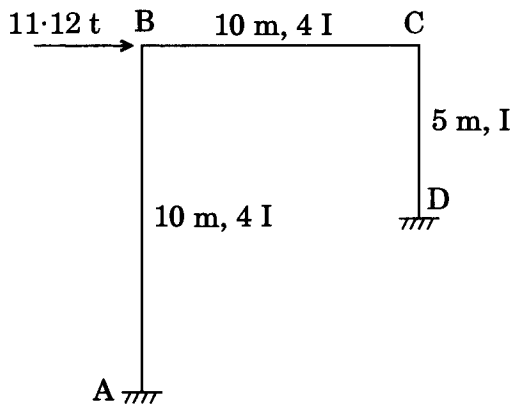


Figure 1

2. (a) What do you understand by a Substitute Frame ? Discuss briefly. 7
- (b) Discuss the concept of Cantilever method briefly. 7
3. Analyse the portal frame as shown in Figure 2 by flexibility method. 14

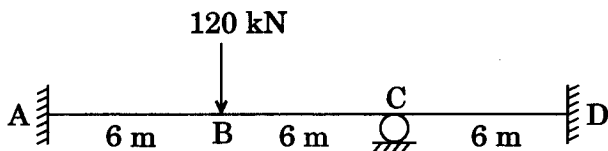


*Figure 2*

4. (a) Differentiate between Force method and Displacement method. 7
- (b) Discuss the advantages of use of computers for analysis of structures. 7

5. Analyse the continuous beam shown in Figure 3 by stiffness method.

14



$EI$  is constant

Figure 3

6. (a) Discuss the concept of static indeterminacy in brief, with examples. 7
- (b) What do you understand by an element stiffness matrix? Discuss briefly. 7

7. Write short notes on any *two* of the following topics :  $2 \times 7 = 14$

- (a) Bending Moment Diagram
- (b) Various Types of Supports
- (c) Free Body Diagram
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