No. of Printed Pages : 3

BICEE-017

B.Tech. CIVIL ENGINEERING (BTCLEVI)

Term-End Examination

00663

June, 2018

BICEE-017 : ADVANCED STRUCTURAL ANALYSIS

Time : 3 hours *Maximum Marks : 70*

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

1. Analyse the frame as shown in Figure 1 by cantilever method. Take cross-sectional areas of all columns equal. *14*

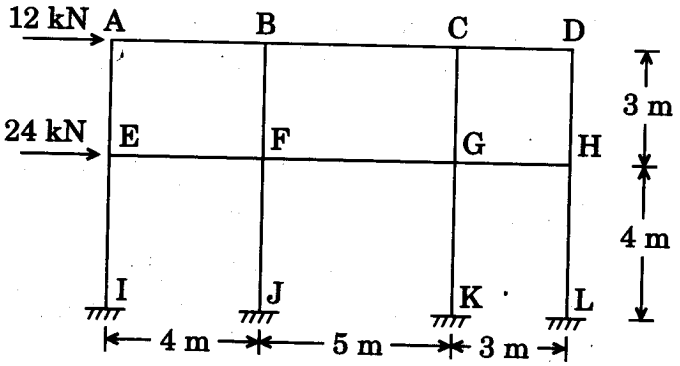


Figure 1

2. (a) Compare a pin jointed truss to a rigid frame. *7*

(b) What do you understand by 'Lack of fit' in a structure ? Discuss briefly. *7*

3. (a) Briefly discuss the behaviour of a grid structure. 7

(b) Compare a fixed support to a hinged support. 7

4. Develop the stiffness matrix for the beam shown in Figure 2 with reference to the given coordinates. 14

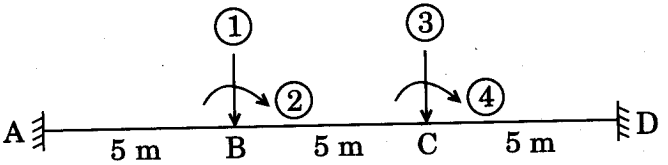


Figure 2

5. Analyse the continuous frame as shown in Figure 3 by stiffness element approach. Consider rotations of joints B and C as unknown displacements. 14

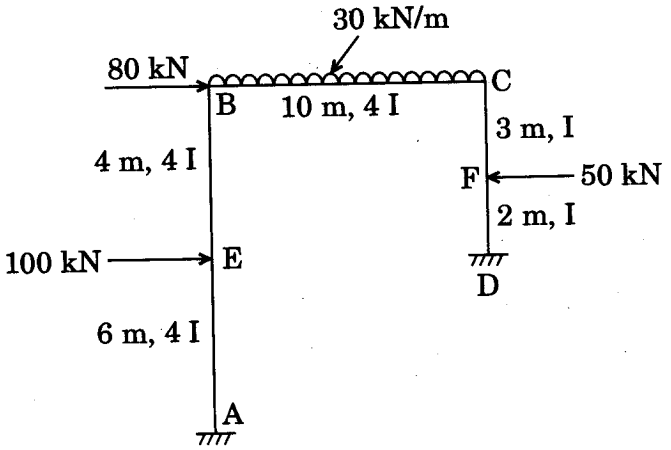
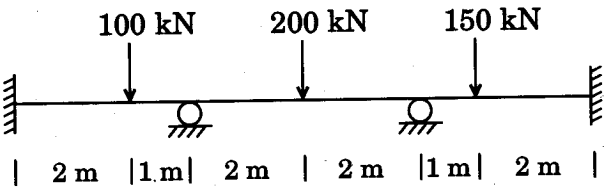


Figure 3

6. Analyse the continuous beam as shown in Figure 4 by stiffness method. *14*



EI is constant

Figure 4

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

(a) Use of Commercial Analysis Packages

(b) Portal Method

(c) Effects of Lateral Loads in a Rigid Frame