JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- April-2019

B.Tech. IVth Semester

COURSE CODE: 10B11CE413   MAX. MARKS: 25
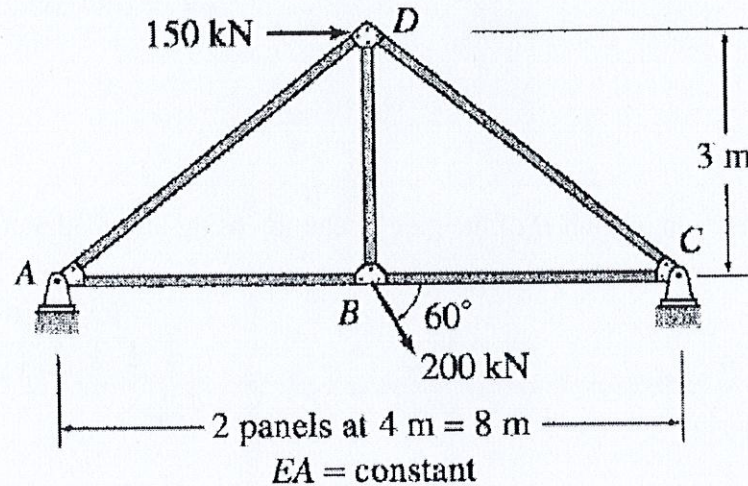
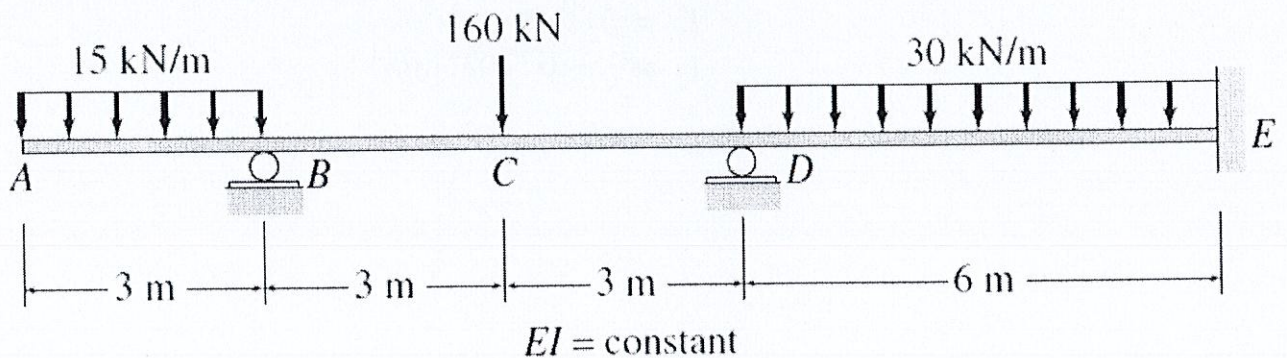COURSE NAME: Structural Analysis

COURSE CREDITS: 04   MAX. TIME: 1.5 Hours

Note: *All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*
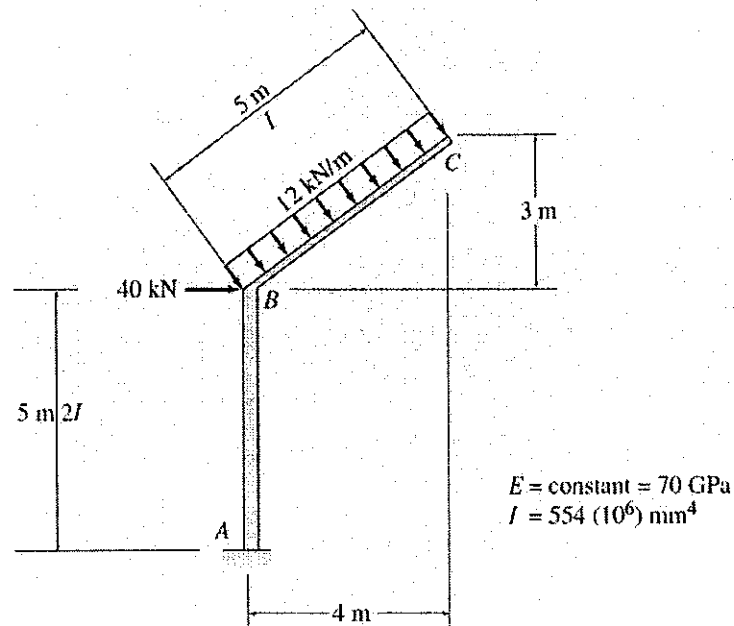

Q.1 Find all support reactions and forces in the member for the given truss by using force method.   **(8)**

150 kN

D

3 m

A

B 60°

C

200 kN

2 panels at 4 m = 8 m

EA = constant

Q.2. Solve the given beam by using three moment equation. Draw the bending moment diagram and deflection pattern of the beam.   **(6)**

160 kN

15 kN/m   30 kN/m

E

A   B   C   D

3 m   3 m   3 m   6 m

EI = constant

Q.3 Find the deflection of joint 'C' along y axis of the frame by using unit load method. Assuming EI is constant for the frame. (6)

40 kN

5 m 2*I*

5 m / *I*

12 kN/m

3 m

C

B

A

4 m

E = constant = 70 GPa
I = 554 (10⁶) mm⁴

Q.4. Find the deflection of joint D of the given beam by using unit load method. (5)

180 kN

15 kN/m

A

B

C

D

5 m

5 m

4 m

EI = constant
E = 70 GPa
I = 2.340 (10⁶) mm⁴