Assignment No: 01
Date: 07/08/2018

BUCKLING

Sub Code X30603 **Title of Subject** STRUCTURAL ANALYSIS - II

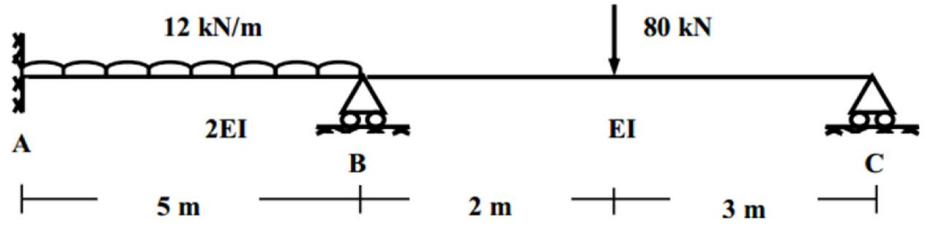
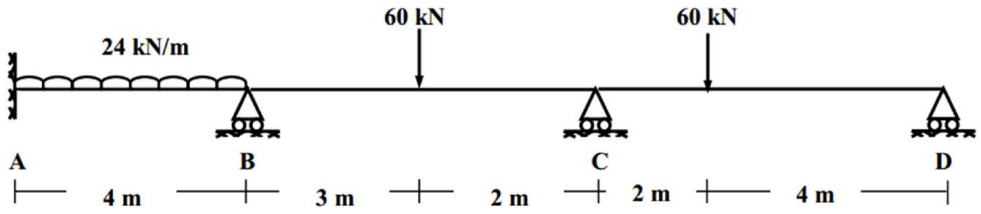
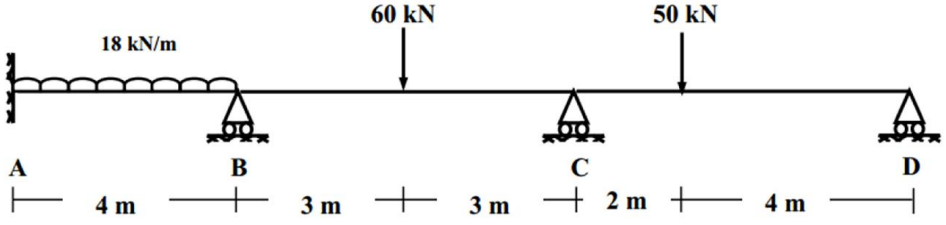
#	Questions
1	Define: Effective Length, Radius of Gyration.
2	Write assumptions made in Euler's formula.
3	Describe the various end conditions of the column and their effective lengths.
4	Calculate the load carrying capacity using Euler's and Rankine's Formula for a rectangular column having 230 mm X 300 mm in cross section and 5 m effective length. The ends of the column are fixed. Take E = 3.6 X 10^4 N/mm^2, Rankine's Constant = 1/1600, fc = 250 N/mm^2.
5	Calculate the load carrying capacity using Euler's and Rankine's Formula for a rectangular column having 400 mm external diameter and 25 mm thickness. The length of the column is 5 m with one end fixed and other hinged. Take E = 2.1 X 10^5N/mm^2, Rankine's Constant = 1/1600, fc = 250 N/mm^2.
6	Compare load carrying capacity using Euler's and Rankine's formula for a compression member made up of Tee- section with following data. Flange size: 200 mm X 12 mm Web size: 388 mm X 10 mm Modulus of Elasticity (E) = 2.1 X 10^5 N/mm^2, Rankine's Constant = 1/1600, fc = 250 N/mm^2, Length of Column = 4 m (One End Fixed and one end Pinned).
7	A hollow C.I Column whose outside diameter is 200 mm has a thickness of 20 mm. It is 4.5 m long and is fixed at both ends. Calculate the critical loads by Euler's theory and also by Rankine's theory. For cast iron take fc = 550 N/mm^2 and α = 1/1600, E = 8 X 10^4 N/mm^2.

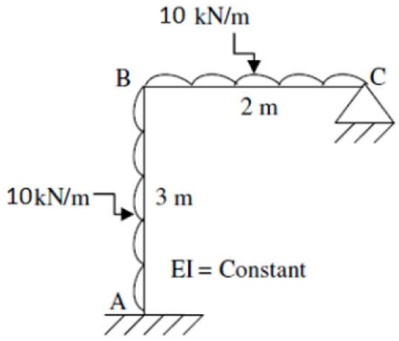
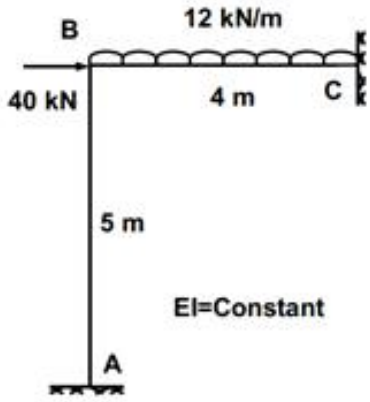
Assignment No: 02

Date: 08/08/2018

MATRIX METHODS

Sub Code X30603 **Title of Subject** STRUCTURAL ANALYSIS - II

#	Questions
1	Differentiate between stiffness and flexibility.
2	Give characteristics of stiffness and flexibility matrix. Also prove the product of Stiffness and Flexibility is unit
3	Formulate Displacement Matrix for a propped cantilever beam of span 4 m subjected to a central point load of 40 kN.
4	A propped cantilever beam of span 6 m is subjected to point load at center. Analyse the beam using flexibility method and draw shear force and bending moment diagrams.
5	Analyse the beam as shown in **Figure** using stiffness method and draw SFD and BMD. 
6	Analyse the beam as shown in Figure using stiffness method and draw SFD and BMD. 
7	Using stiffness method formulate displacement matrix, reactions and draw Shear force and bending moment diagram for the beam shown in Figure. 

8	Analyse the plane frame as shown in **Figure** below using flexibility method. 
9	Analyse the plane frame as shown in Figure below using flexibility method. 

Assignment No: 03
Date: 08/08/2018

CURVED STRUCTURES

Sub Code X30603 **Title of Subject** STRUCTURAL ANALYSIS - II

#	Questions
1	For a three hinge parabolic arch of span L, central rise H subjected to Uniformly Distributed Load (UDL) over entire span, derive that Bending moment at any location is zero.
2	A three hinged parabolic arch of span 16 m and central rise of 4 m is subjected to a point load of 50 kN at 6 m from left end support. Calculate Support reactions and find out maximum positive bending moment.
3	A three hinged parabolic arch of span 20 m and central rise of 3 m is subjected to a point load of 100 kN at 5 m from left end support. Calculate Support reactions and find out maximum positive bending moment.
4	A three hinged circular arch of span 16 m and central rise 4 m is subjected to a central point load of 100 kN on 4 m from left end support. Calculate support reactions and maximum negative bending moment.
5	A three hinged parabolic arch of span 16 m and central rise of 4 m is subjected to Uniformly Distributed Load (UDL) of 10 kN/m over left 8 m span. Calculate Support reactions and find out maximum positive & negative bending moment.