

Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Online End Semester Examination, Dec 2020

Programme Name: B.Tech. Civil Engineering

Semester : V

Course Name : Structural Engineering

Time : 03 hrs

Course Code : CIVL 3018

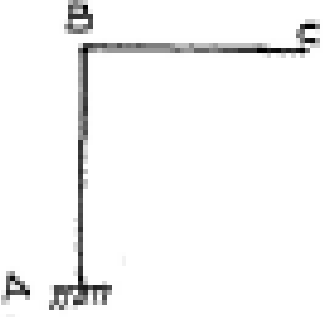
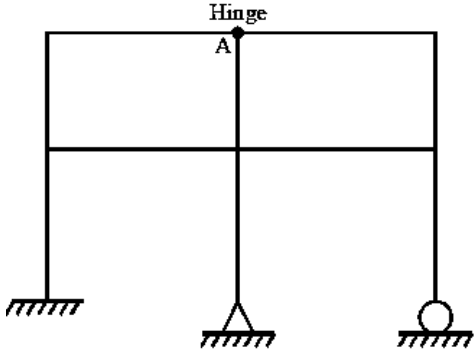
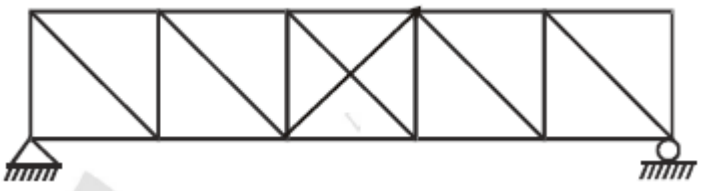
Max. Marks : 100

Nos. of page(s) : 3

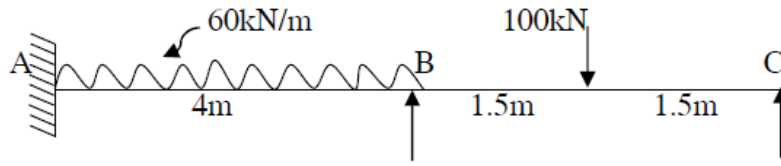
Instructions:

Answer all questions of Section A, B & C

SECTION A

S. No.		Marks	CO
Q 1	Determine the degree of kinematic indeterminacy of the frame shown in figure. 	5	CO1
Q 2	Calculate degree of static indeterminacy for the frame 	5	CO1
Q 3	Determine the static indeterminacy for the truss 	5	CO1
Q 4	Determine the kinematic indeterminacy for the truss	5	CO1

Q 5	Write the reasons for preferring to Kani's 'Rotation Contribution' method over Moment distribution method.	5	CO2
Q 6	When does the stiffness method is more suitable than flexibility method?	5	CO3
SECTION B			
Q 7	A beam of span 6 m is to be designed for an ultimate UDL of 25 kN/m. The beam is simply supported at the ends. Design a suitable I section using plastic theory, assuming $\sigma_y = 250$ MPa.	10	CO4
Q 8	Calculate shape Factor for a) Circular Section b) I Section	10	CO4
Q 9	Analyse the continuous beam and draw BMD by slope deflection Method.	10	CO2
Q 10	Analyse the continuous beam and draw BMD by Moment distribution Method.	10	CO2
Q 11	Derive the stiffness factor for a beam whose far end is simply supported.	10	CO3
SECTION-C			
Q 12	Analyse the continuous beam shown in the figure by flexibility matrix method, draw BMD.	20	CO3



OR

Analyse the continuous beam shown in the figure by Stiffness matrix method, draw BMD.