



Roll No:

BTECH
(SEM V) THEORY EXAMINATION 2024-25
STRUCTURAL ANALYSIS

TIME: 3 HRS

M.MARKS: 70

Note: Attempt all Sections. In case of any missing data; choose suitably.

SECTION A

1. Attempt all questions in brief.

2 x 07 = 14

Q no.	Question	CO	Level
a.	Classify the structures base on stability.	1	K2
b.	Where the loads must be applied on a pin jointed truss?	1	K1
c.	Give the classification of truss.	2	K2
d.	What are the assumptions made in finding the forces in a truss?	2	K1
e.	What is the use of Maxwell's reciprocal theorem?	3	K1
f.	What are the advantages of influence line diagram?	4	K2
g.	What is the principle of Eddy's theorem?	5	K3

SECTION B

2. Attempt any three of the following:

07 x 3 = 07

a.	Determine the degree of indeterminacy of the truss shown in figure.	1	K5
b.	Explain simple truss with sketch those are stable in form independent of support.	2	K5
c.	A continuous beam ABC of uniform section has two equals spans AB and BC each of length "l". During loading support 'B' sinks by δ_1 and support C sinks by δ_2 . Find the reactions at supports in terms δ_1 and δ_2 and l and flexural rigidity EI of the beam by strain energy method.	3	K5
d.	A uniformly distributed load of 15 kN/m covering a length of 3 m crosses a girder of span 10 m. Find the maximum shear force and bending moment at a section 4 m from left hand support.	4	K3
e.	Formulate equation of three hinged parabolic arch and equation of three hinged circular arch.	5	K5

SECTION C

3. Attempt any one part of the following:

07 x 1 = 07

a.	What do you mean by static indeterminacy? Explain giving at least two examples with reference to trusses.	1	K1+K4
b.	A cable of span 100 m has its ends at heights 8 m, above the lowest point of the cable. It carries a Udl of 10 kN/m run of the span. Determine the horizontal and vertical reaction at the support What is the length of the cable?	1	K5

