

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2025***Sixth Semester**Civil Engineering***CE3602 - Structural Analysis II***Regulations - 2021***Duration : 3 Hrs****Maximum : 100 Marks****PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

Q.No	Questions	BLT	CO	Marks
1.	State the application of bending moment diagram.	L1	1	2
2.	Define bending moment.	L2	1	2
3.	Draw Propped cantilever.	L1	2	2
4.	State Muller Breslau's principle.	L1	2	2
5.	What is Eddy's theorem?	L1	3	2
6.	Distinguish between two hinged and three hinged arches.	L1	3	2
7.	List out the different types of cable structures.	L1	4	2
8.	Define stiffening girder.	L2	4	2
9.	What do you mean by gravity loading?	L1	5	2
10.	What is shear force?	L2	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

Q.No	Questions	BLT	CO	Marks
11.	a Calculate the maximum positive Shear at centre when the SS beam is loaded with a concentrated load of 12 kN and UDL of 6 kN/m acting throughout the beam.	L5	1	16
	Or			
	b Draw the ILD for shear force and bending moment for a section at 50 m from the left-hand support of a simply supported beam, 200 m long, Hence calculate the maximum bending moment and shear force at the section due to an uniformly distributed load of length 80 m with an intensity 100 kN/m.	L5	1	16
12.	a Draw the Influence line diagram for the continuous beam ABC of span AB=BC=12m SS at A, B & C compute the ordinate at every 1.5m interval using Muller Breslau principle. EI is constant.	L4	2	16
	Or			

- b Draw the influence line diagram for the propped reaction of a propped cantilever beam having span 6 m. EI is constant. L4 2 16
13. a A symmetrical three-hinged circular arch has a span of 13m and a rise to the central hinge of 3m. It carries a vertical load of 15kN at 3m from the left-hand end. Analyze and find the followings: L4 3 16
 i) The reactions at the support
 ii) Bending moment at 5m from the left-hand hinge
- Or**
- b A two hinged parabolic arch of span 'L' and rise 'h' carries a triangular load covering a distance a from the left end, the intensity varying uniformly from zero to W. Discuss and obtain an expression for the horizontal thrust. L4 3 16
14. a A three hinged stiffening girder of a suspension bridge of 100 m span subjected to two point loads 10 kN each placed at 20 m and 40 m, respectively from the left hand hinge. Determine the bending moment and shear force in the girder at section 30 m from each end. L4 4 16
- Or**
- b A suspension bridge is of 50m span with a 16m wide roadway. It is subjected by a pair of cables having a central dip of 4.2m. Find the cross-sectional area of the cable necessary if the maximum permissible stress in the cable material is 600 N/mm². L4 4 16
15. a Explain the substitute Frame method of analysis for a multistoried frame for obtaining the maximum bending moment in a particular beam or a column. L5 5 16
- Or**
- b Use portal method, analyze the building frame subjected to horizontal force (due to wind) as shown in figure, Draw the bending moment diagram. L5 5 16

