Register No : _____

THE KAVERY ENGINEERING COLLEGE

(An Autonomous Institution)

UG/PG DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2026

Sixth Semester

Civil Engineering

CE3602 – STRUCTURAL ANALYSIS-II

Regulations - 2021

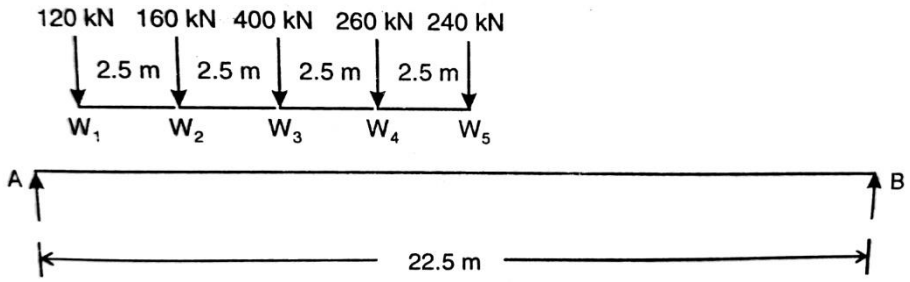
Duration : 3 Hrs ***Maximum : 100 Marks***

PART – A(ANSWER ALL QUESTIONS) (Marks 10*2=20)

Q.No	*Questions*	*BLT*	*CO*	*Marks*
1.	Draw the ILD for shear force at a given section of a simply supported beam.	K2	1	2
2.	What is the difference between ILD and BMD?	K2	1	2
3.	State Muller-Breslau's Principle.	K1	2	2
4.	Explain how bending moment ILDs differ for statically determinate and indeterminate beams	K2	2	2
5.	State Eddy's Theorem.	K1	3	2
6.	What is rib shortening in arches?	K1	3	2
7.	Why are stiffening girders provided in suspension bridges?	K2	4	2
8.	Define the method of tension coefficients.	K1	4	2
9.	Why is the substitute frame method used for multi-story frames?	K2	5	2
10.	Compare the portal method and the cantilever method.	K2	5	2

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

Q.No		*Questions*	*BLT*	*CO*	*Marks*
11.	a	A train of 5 wheel loads crosses a simply supported beam of span 22.5m. Using influencing lines, calculate the maximum positive and negative shear forces at mid span and absolute maximum bending moment anywhere in the span. As shown in fig 11(a).	K3	1	16



Or

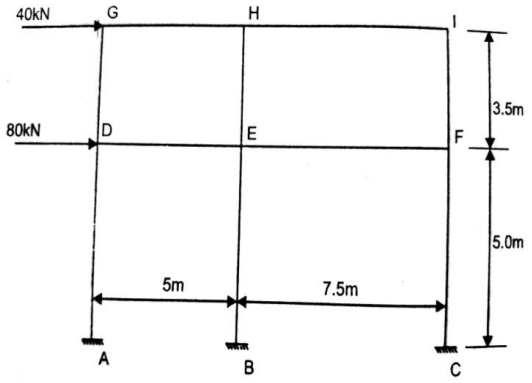
	b	Draw the ILD for shear force and bending moment for a section at 5m from the left-hand support of a simply supported beam 20 m long. Hence calculate the maximum bending moment and shear force at the section, due to an uniformly distributed rolling load of length 8 m from left support and intensity 10 kN/m acting throughout the beam.	K3	1	16
12.	a	A two span continuous beam ABC with spans AB = 9 m BC = 6 m Determine and construct the influence line diagram for shear force at a Point 4.5 m from the support A. Compute the ordinates at 1 m intervals.	K4	2	16

Or

	b	Using Muller Breslau's principle, draw the influence line diagram for the reaction at B for the propped cantilever AB of span 20 m. Compute the ordinates at interval of 2.5 m.	K4	2	16
13.	a	A symmetrical three hinged parabolic arch of span 40m and central rise 8m carries an uniformly distributed load of 30 kN/m over the left half of the span. The hinges are provided at the supports and at the centre of arch. Calculate the reactions at the support .Also calculate the bending moment, radial shear and normal thrust at a distance of 10m from the left support.	K3	3	16

Or

	b	A three hinged circular arch of span 16m and rise 4m is subjected to two point loads of 100kN and 80kN at the left and right quarter span points respectively. Find the reaction at supports. Find also the bending moment, radial shear and normal thrust at 6m from left support.	K3	3	16
14.	a	A cable of horizontal span 21m is to be used to support six equal loads of 40kN each at 3m spacing. The central dip of the cable is limited to 2m.Find the length of the cable required and also its sectional area if the safe tensile stress is 750 N/mm^2.	K4	4	16
		Or			
	b	A suspension bridge of 140 m span has two members of 3 hinge stiffening girders supported by two cables with a central dip of 12m. The width of the roadway supported by the girder is 5m. Dead load 7 kN/m^2 of floor area. A live load of 12.5 kN/m^2 covers the left hand half of the bridge. Find the shear force and bending moment at the loaded quarter span point. Determine also the maximum tension in the cables.	K4	4	16
15.	a	Write down the step-step procedure of substitute frame method for analyzing the multi-storied building.	K4	5	16
		Or			
	b	Using the cantilever method, analyse the building frame subjected to horizontal force as shown in fig. Draw the bending moment diagram.	K4	5	16



******