



PRESIDENCY UNIVERSITY

BENGALURU

Roll No.														
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End - Term Examinations – May / June 2026

Date: 26 – 05- 2026

Time: 09:30am – 12:30pm

School: SOE	Program: B.Tech. (Civil Engineering)	
Course Code: CIV2506	Course Name: Analysis of Determinate Structures	
Semester: IV	Max Marks: 100	Weightage: 50%

CO - Levels	C01	C02	C03	C04	C05
Marks	10	20	30	20	20

Instructions:

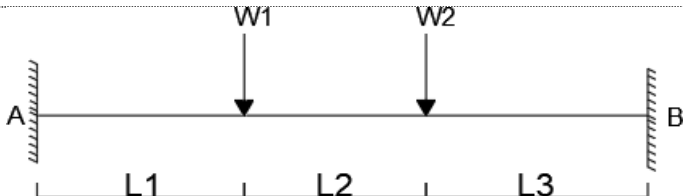
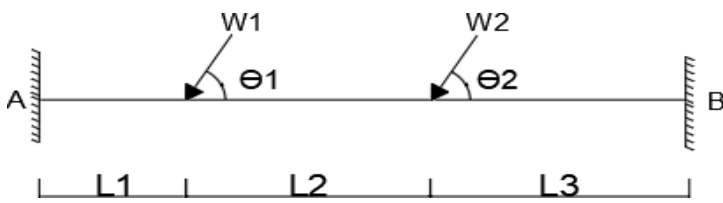
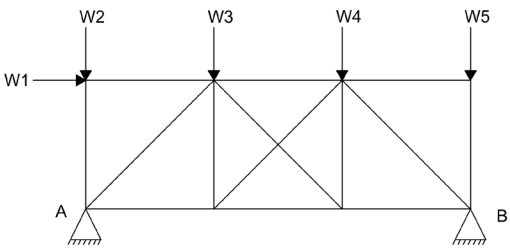
- Read all questions carefully and answer accordingly.
- Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks.

5Q x 2M=10M

1.	Compute the Degree of Indeterminacy of a continuous beam shown in the figure.	2 Marks	L2	C01
2.	Compute the Degree of Indeterminacy of a simply supported beam shown in figure.	2 Marks	L2	C01
3.	Compute the Degree of Indeterminacy of a fixed beam shown in figure.	2 Marks	L2	C01

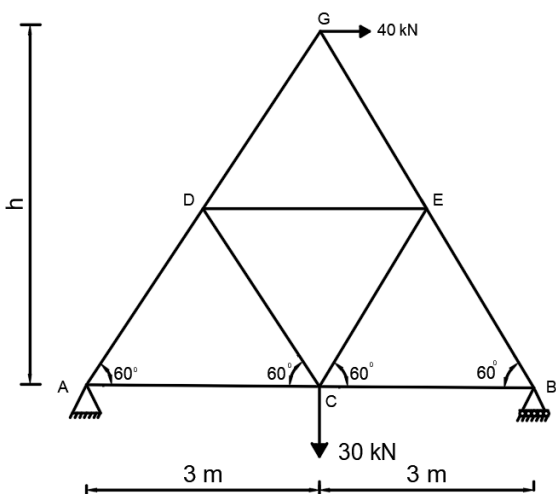
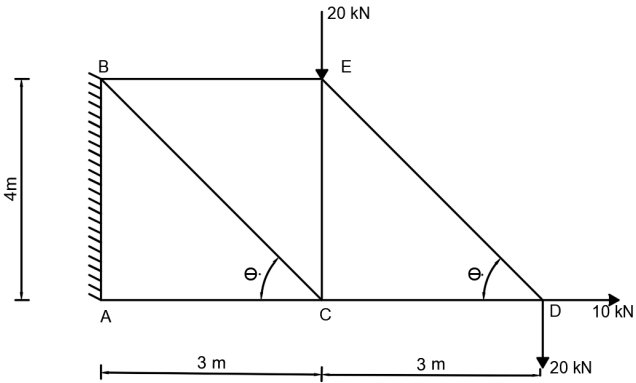
				
4.	Compute the Degree of Indeterminacy of a fixed beam shown in figure. 	2 Marks	L2	C01
5.	Compute the total Degree of Indeterminacy of a truss shown in figure. 	2 Marks	L2	C01

Part B

Answer the Questions.

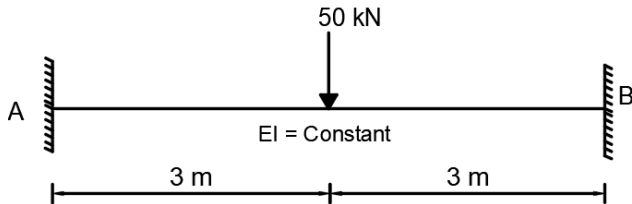
Total Marks 90M

6.	A Suspension cable having supports at same level of span 50m and maximum dip of the cable is 8m subjected to UDL of magnitude 10 kN/m throughout the length Find maximum tensile force induced in the cable and cross-sectional area required for the cable, if $f_s = 1400 \text{ N/mm}^2$	10 Marks	L3	C03
Or				
7.	Three hinged symmetrical parabolic arch of span 40 m and rise 5m is subjected to point load of magnitude 200 kN at 10 m from the left support Calculate the support reactions and draw BMD.	10 Marks	L3	C03
8.	Calculate the slopes at the supports and deflection at mid span of simply supported beam of span 5 m, subjected to UDL of magnitude of 25kN/m on the complete length of the beam by moment area method. Take $EI = 15 \times 10^3 \text{ kNm}^2$.	10 Marks	L3	C04
Or				
9.	Calculate the maximum slope and deflection for a cantilever beam of length 3 m and subjected to uniformly distributed load of magnitude 20 kN/m on the complete length of the beam by moment area method. Take $EI = 10 \times 10^3 \text{ kNm}^2$.	10 Marks	L3	C04

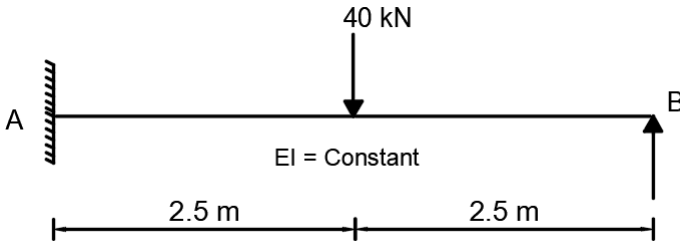
10.	Calculate the maximum slopes and deflection for simply supported beam of span 4m, subjected to UDL of magnitude 20 kN/m on the entire length of the beam by conjugate beam method. Take $EI = 10 \times 10^3 \text{ kNm}^2$.	10 Marks	L3	C04
Or				
11.	Calculate the maximum slope and deflection for a cantilever beam of length 3 m and subjected to point load of magnitude 30 kN at the free end by conjugate beam method. Take $EI = 10 \times 10^3 \text{ kNm}^2$.	10 Marks	L3	C04
12.	Calculate forces in all the members of a truss loaded as shown in the figure by method of joints and indicate the nature and magnitude of the forces against the members. 	20 Marks	L3	C02
Or				
13.	Calculate the forces in all the members of truss shown in the figure by method of sections and indicate the nature and magnitude of the forces against the members. 	20 Marks	L3	C02
14.	Three hinged symmetrical parabolic arch of span 40m and rise 6m is subjected to UDL of magnitude 25 kN/m on left half of the arch. Calculate support reactions and draw BMD. Also calculate the radial shear and Normal thrust at 10 m from the left support.	20 Marks	L3	C03

Or

15.	The suspension cable having supports are at same level of span 50 m, dip of the cable is 10 m, subjected to uniformly distributed load of magnitude 20 kN/m throughout the length and it is supported at A & B. Calculate the maximum tensile force induced in the cable. Also compute the vertical force and maximum bending moment on pier. Take back stay is 50° with respect to vertical and height of the pier is 15 m for the following supporting devices. a) Friction less pulley b) Saddle or Roller support	20 Marks	L3	C03
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16.	Analyze a fixed beam loaded as shown in the figure by the consistent deformation method and draw the BMD and SFD. Take $EI = \text{Constant}$. 	20 Marks	L3	C05
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Or

17.	Analyze the propped cantilever beam loaded as shown in the figure by consistent deformation method and draw the BMD and SFD. Take the value $EI = \text{Constant}$. 	20 Marks	L3	C05
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