SET-1

ROLL NO.

BABU BANARASI DAS
INSTITUTE OF TECHNOLOGY & MANAGEMENT, LUCKNOW (AKTU Code: 054)

B.TECH, (CE)BRANCH, 3rd YEAR

(5th SEM), First Sessional Examination Odd Sem 2025-26

Subject Name : Structural Analysis (BCE502)

Faculty Name: Ms. Kajal Singh

Duration: 01:30 Hrs **Max. Marks: 20**

Note: (i) No student will be allowed to leave the examination Room before end of exam.
(ii) Mention Question number/section correctly.
(iii) Be precise in your answer.

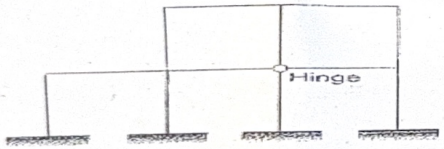
Course Outcomes:

Following are the course outcomes of the subject:

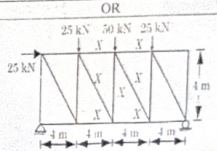
CO Code	Course Outcome (CO)	Bloom's Level
BCE502.1	Explain type of structures and method for their analysis	L5
BCE502.2	Analyse different types of trusses for member forces.	L5
BCE502.3	Compute slope and deflection in determinate structures using different methods	L5
BCE502.4	Apply the concept of influence lines and moving loads to compute bending moment and shear force at different sections.	L5
BCE502.5	Analyse determinate arches for different loading conditions.	L4

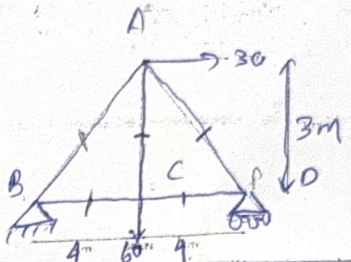
Section: A

1. Attempt all questions: **(4 x 1 = 4)**

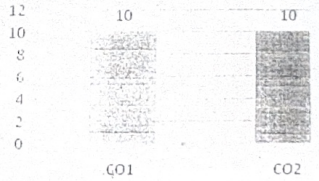
Q.No.	Questions (Attempt all questions)	Marks	CO	BL
a)	Calculate the static indeterminacy both external and internal frame 	1	BCE502.1	L2
b)	Discuss suspendors with the diagram ?	1	BCE502.2	L2
c)	Explain the determinate and indeterminate structure?	1	BCE502.1	L2
d)	Define different types of structure.	1	BCE502.2	L1

Section-B

Q. No.		Questions (Attempt Any one part from each question)	Marks	CO	BL
2.	A	Solve the maximum and minimum tension in cable carrying uniformly distribute load, span of cable L and dip is 'h'.	4	BCE502.1	L3
		OR			
	B	A cable used to support five equal and equidistance loads over a span of 30m. solve the length of the cable and its section area, if safe tensile stress is 140KN/m^2 the central dip of the cable is 2.5 and loads are 5KN	4		L3
3.	A	Classify the assumption for analyzing the truss? What is the different method of truss analyzing.	4	BCE502.2	L4
		OR			
	B	Analyze the forces in the member by using tension coefficient method.	4		L4
4.	A	Prove the expression for horizontal thrust, vertical support reaction when cable supported at different level of support. If span of cable L and dip is 'h' loaded with uniformly distributed load.	4	BCE502.1	L5
		OR			
	B	A cable suspended between two points at a same level with a central dip of 20m over a span of 140m and carries a uniformly distributed load of intensity 1.5 KN/m of horizontal length. Determine the change in the horizontal tension if the temperature rises by 30^0 F from the original . Take $\alpha = 5 \times 10^{-6}$ / ^{0}F per 1^0 F ?also calculate the maximum tension in the cable?	4		L5
5.	A	Prove the expression for tension coefficient method?	4	BCE502.2	L5
		OR			
	B	 Fig. 2.8.1. Determine the forces in X member shown in above figure ?	4		L5



Course Outcome Wise Marks



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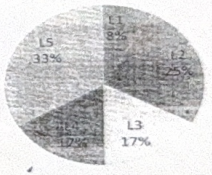
Bloom's Level Distribution



Checked By
(Head of Department)