



GOVERNMENT COLLEGE OF ENGINEERING, YAVATMAL.
(Naringe Nagar, Dhamangaon Road Yavatmal-445001)
(Affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere)
MID-SEM Examination (Odd-2022-23)

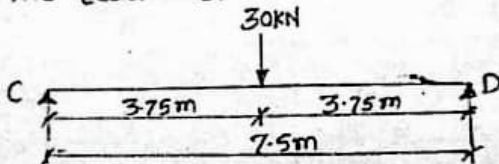
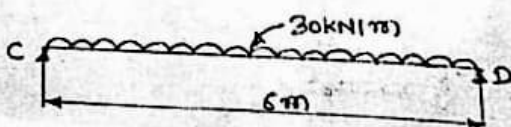
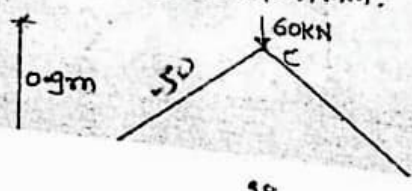
Branch:-CIVIL

Course Code :BTCVC503
Time : 01.00 Hour
Semester : 5th

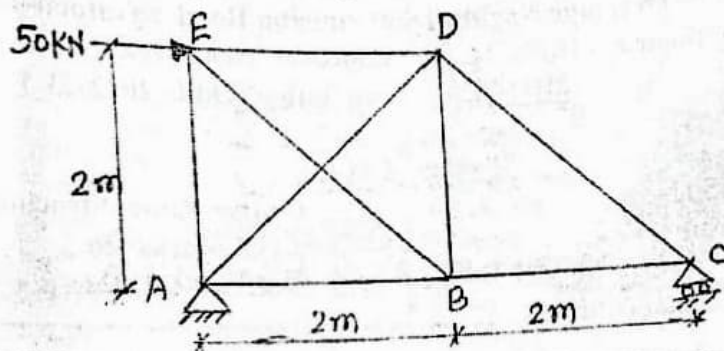
Course Name: Structural mechanics - II
Max. Marks: 20
Date: 19/10/2022

Instructions:

1) All questions are compulsory. 2) Illustrate your answers with neat sketches wherever necessary. 3) Figures to the right indicate full marks. 4) Use of non-programmable calculator is permissible. 5) Assume suitable data if necessary

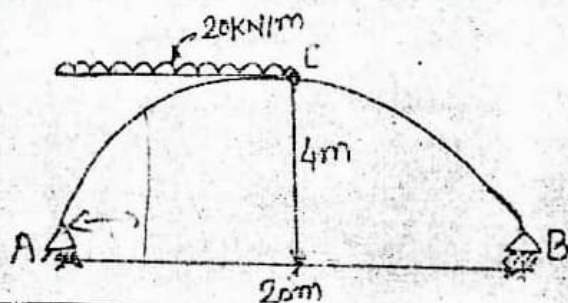
Attempt any TWO of the following		08	C Os
Q 1	<p>a</p> <p>① A beam CD carries a concentrated load of 30 kN at the centre having span equal to 7.5 m. Draw ILD & determine the reactions.</p>  <p align="right">15 1f</p>	04	
	<p>b</p> <p>② A suspension cable is suspended at the same level 100 m apart. It carries a u.d.l 15 kN/m horizontal. Determine the minimum central dip if the maximum tension in the cable is limited to 1200 kN.</p> <p align="right">936.75</p>	04	CO 1
	<p>c</p> <p>③ A beam CD is loaded with u.d.l of 30 kN/m over the whole span of 6 m. Find the reactions at the supports using ILD.</p> 	04	
Attempt any ONE of the following		06	
Q 2	<p>a</p> <p>① Determine the horizontal displacement of the joint C of the pin jointed frame as shown in fig. @ cross sectional area of AB is 500 mm² & of AC & BC is 700 mm². Assume E = 200 kN/mm².</p> 	06	
		06	CO 2

- b ⑥ Analyse the truss supported & loaded as shown in fig. Take $EA = \text{constant}$.

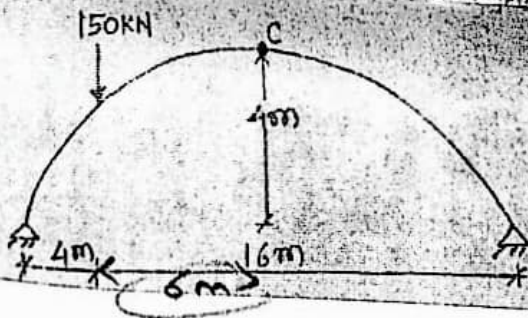


Attempt any ONE of the following

- a ① A three-hinged parabolic arch of span 20m & rise 4m carries a udl of 20kN/m on the left half of the span. Find the maximum moment for the arch.



- b ② A three-hinged parabolic arch of 20m span & 4m central rise, carries a point load of 150kN at 4m from left support. Calculate the normal thrust & radial shear under the load. Calculate the maximum positive BM.



Course Outcomes (Statement)

CO1	Have a basic understanding of concept of influence line & Analysis of forces in cables
CO2	Have a basic understanding of matrix method of analysis and will be able to analyze the determinant structure & Analysis of determinate and indeterminate pin jointed trusses by energy method
CO3	Have a basic understanding of analysis of three hinged parabolic and geometric arches, concept of radial shear force and axial thrust.

Marks distribution

CO1

CO2

CO3