Roll No: | | | | | | | | | | | |

PRESIDENCY UNIVERSITY

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Presidency University Act, 2013 of the Karnataka Act No. 41 of 2013 | Established under Section 2(f) of UGC Act, 1956
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Bengaluru

Mid Term Examinations - October 2026

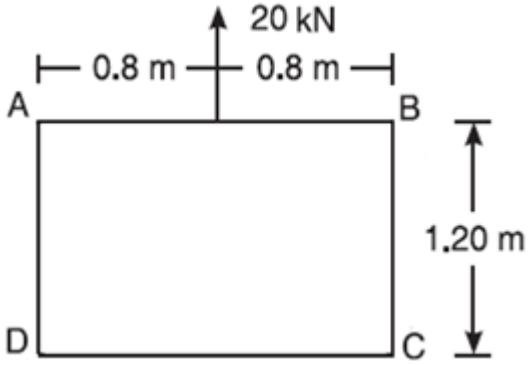
Date: 08/10/2026 **Time:** 09:30 AM - 11:00 AM

Course Code: CIV1501 **Course Name:** Elements of Engineering Mechanics

Semester: First Semester **Max. Marks:** 50 **Weightage:** 50%

CO - Levels	CO1	CO2	CO3
Marks	10	60	20

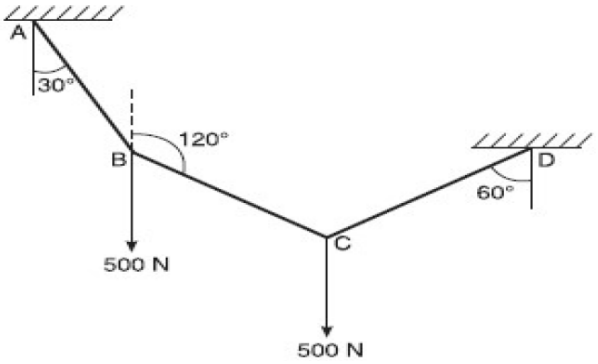
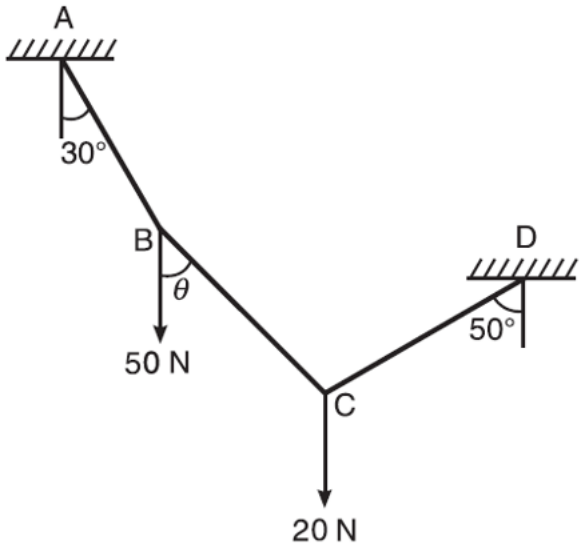
PART A: Answer Following Questions. 10 M

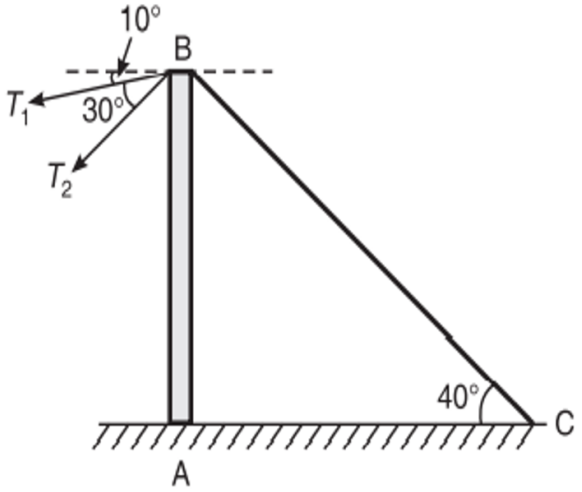
Q.N.	Questions	M	CO	BT
1	State Varignon's theorem.	2	CO1	BT1
2	List any two properties of a couple	2	CO1	BT1
3	What is Like parallel and unlike parallel forces. Demonstrate with the help of a sketch	2	CO1	BT1
4	Determine the Moment due to the 20 kN force at points A and C. 	2	CO1	BT2
5	State the (i) Principle of Physical Independence of Forces and (ii) Principle of Superposition	2	CO1	BT1

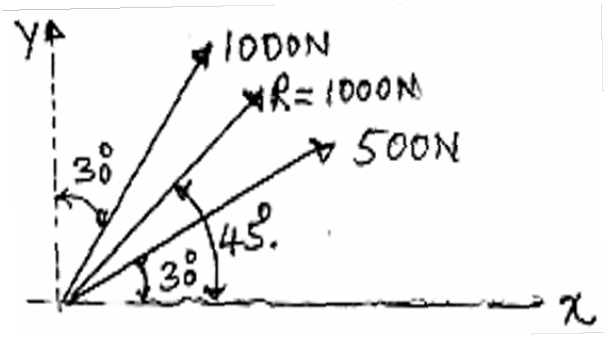
PART B : Answer Any 1 Following Questions. 10 M

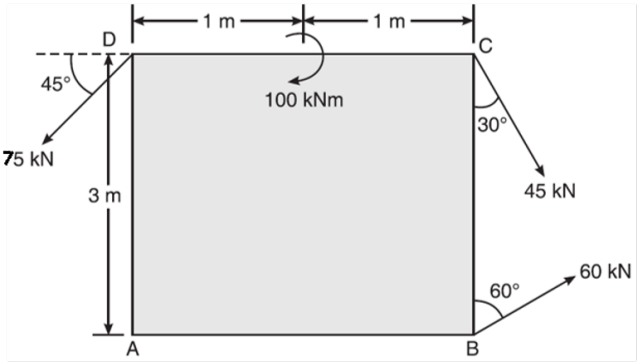
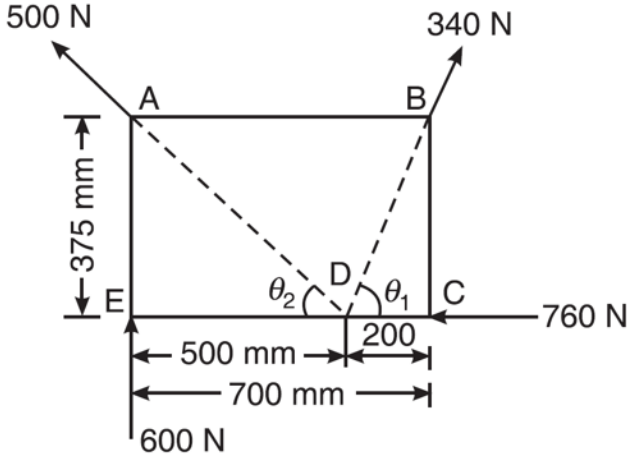
Q.N.	Questions	M	CO	BT

PTO (Please Turn Over)

6	A string ABCD attached to two fixed points A and D has two equal weights 500 N attached to it at B and C (Figure 6). The weights rest with portions AB and CD inclined at angles of 30° and 60° respectively with the vertical. Find the tensions in the portions AB, BC, and CD of the string. The inclination of BC with vertical is 120°  **Fig. 6**	10	CO3	BT3
7	Determine the angle θ for the system of strings ABCD in equilibrium as shown in Figure 7  **Fig. 7**	10	CO3	BT3

PART C: Answer Any 1 Following Questions. 15 M				
Q.N.	**Questions**	**M**	**CO**	**BT**
8	Two cables which have known tensions T1 = 2 kN and T2 = 4 kN are attached at the point B of a mast AB as shown in Fig. 8. A third cable BC is used as a guy wire and is attached at B. Determine the required tension in cable BC, so that the resultant of the forces exerted by the three cables will be vertical. Also find the magnitude of the resultant.  **Fig. 8**	15	CO2	BT3

9	Two forces acting on a body are 500 N and 1000 N as shown in Fig. 9. Determine the third force F such that the resultant of all three forces is 1000 N directed at 45° to the x–axis.  **Fig. 9**	15	CO2	BT3

PARTD: Answer Any 1 Following Questions. 15 M				
Q.N.	**Questions**	**M**	**CO**	**BT**
10	Find the magnitude and direction and distance of the resultant from the point 'A' for the system of forces shown in Figure 10.  **Fig. 10**	15	CO2	BT3
11	Determine the magnitude, direction and point of application of the resultant force for the system of coplanar forces shown in Fig 11. Locate position w.r.t. point A.  **Fig. 11**	15	CO2	BT3