Roll No: .....

MAR ATHANASIUS COLLEGE OF ENGINEERING, KOTHAMANGALAM – 686 666.
(GOVERNMENT AIDED AUTONOMOUS ENGINEERING COLLEGE)

DEPARTMENT OF MECHANICAL ENGINEERING

SECOND SESSIONAL EXAMINATION, APRIL 2025
S2 MECHANICAL – A&B BATCHES

B24ME1T02 - STATICS AND DYNAMICS FOR ENGINEERS

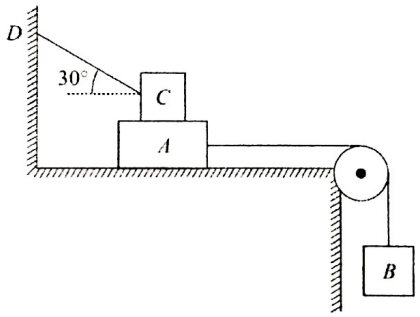
Time – 1 Hour 30 Minutes **Max: 40 Marks**

PART-A
Answer All Questions.

1	What is the physical significance of area moment of inertia? Using this concept, give reasons why beams are more deep than wide?	**CO 3**	**3 Marks**
2	Define centroid and centre of gravity. When do they coincide?	**CO 3**	**3 Marks**
3	Differentiate Kinematics and Kinetics.	**CO 4**	**3 Marks**
4	An electric train starting from rest attains a maximum speed of 100 kmph in 20 seconds. Determine the distance covered during this time period?	**CO 4**	**3 Marks**

PART - B
Answer All Questions..

5 In figure shown, a block A of 15 kg mass is connected to another block B **CO 2** **14 Marks**



of 10 kg mass by a string passing over a frictionless pulley. Determine the minimum mass of the block C, (connected to the wall by a string CD) which must be placed over the block A to keep it from sliding. Take coefficient of friction between all contact surfaces to be 0.25. Also, determine the tension in the string CD.

6 Find the moments of inertia of the angle section shown about centroidal axes. Also, find the radii of gyration about the same axes. Also, determine the moment of inertia of the angle section about the base. **CO 3** **14 Marks**

