Name : .....
Roll No: .....

**MAR ATHANASIUS COLLEGE OF ENGINEERING (AUTONOMOUS)**
**KOTHAMANGALAM – 686 666.**

**DEPARTMENT OF MECHANICAL ENGINEERING**

**FIRST SESSIONAL EXAMINATION, MARCH 2025**
**S2 MECHANICAL – A&B BATCHES**

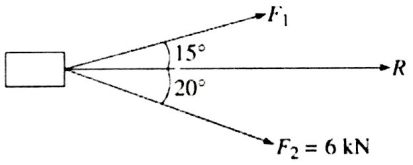
**B24ME1T02 - STATICS AND DYNAMICS FOR ENGINEERS**

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

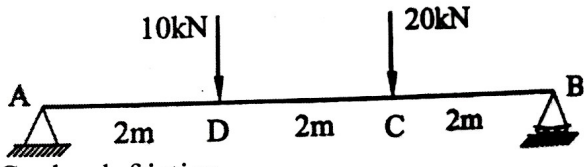
## PART-A

*Answer All Questions.*

| | | | |
|---|---|---|---|
| 1 | Explain Varignon's theorem. | **CO 1** | **3 Marks** |
| 2 | A disabled car is pulled along a road by two ropes as shown in figure. Find the force $F_1$ and the resultant $R$ along the direction of the road. | **CO 1** | **3 Marks** |




| | | | |
|---|---|---|---|
| 3 | A simply supported beam 6 m long is loaded as shown in figure. Calculate the reactions at the supports A and B. | **CO 2** | **3 Marks** |



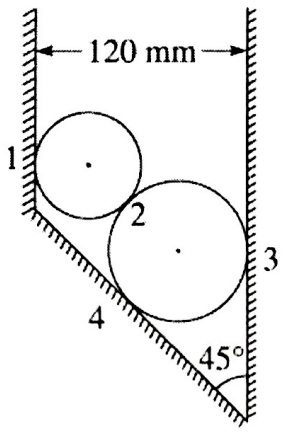

| | | | |
|---|---|---|---|
| 4 | State laws of Coulomb friction. | **CO 2** | **3 Marks** |

## PART - B

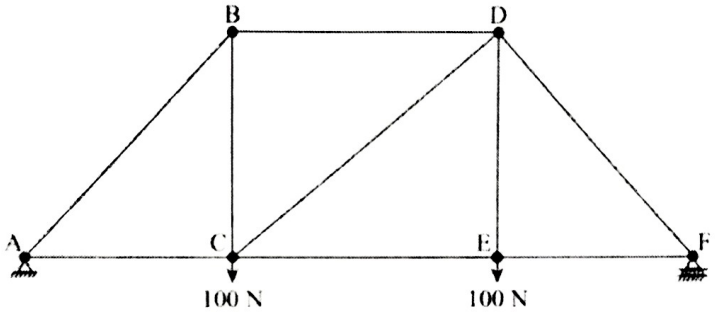
*Answer All Questions.*

| | | | |
|---|---|---|---|
| 5 | Two cylinders of diameter 100 mm and 50 mm, weighing 200 N and 50 N respectively are placed in a trough as shown in figure. Assuming all contact surfaces smooth, find the reactions developed at contact surfaces 1,2, 3, and 4. | **CO 1** | **14 Marks** |

Name : .....
Roll No: .....




6 For the truss shown in figure, find the forces in all the members. All the angles are either 45° or 90°. **CO 2** **14 Marks**




**Vision**

Mentoring to Ensure Excellence

**Mission**

- To Facilitate comprehensive and integrated devlopement of students by providing quality education that encourages sustainable practices
- To mould disciplined and socailly committed engineers capable of assuming professional leadership upholding national integrity.