

SUBJECT CODE NO:- P-293
FACULTY OF ENGINEERING AND TECHNOLOGY
F.E. Examination MAY/JUNE-2016
Engineering Mechanics
(Revised)

[Time: Two Hours]

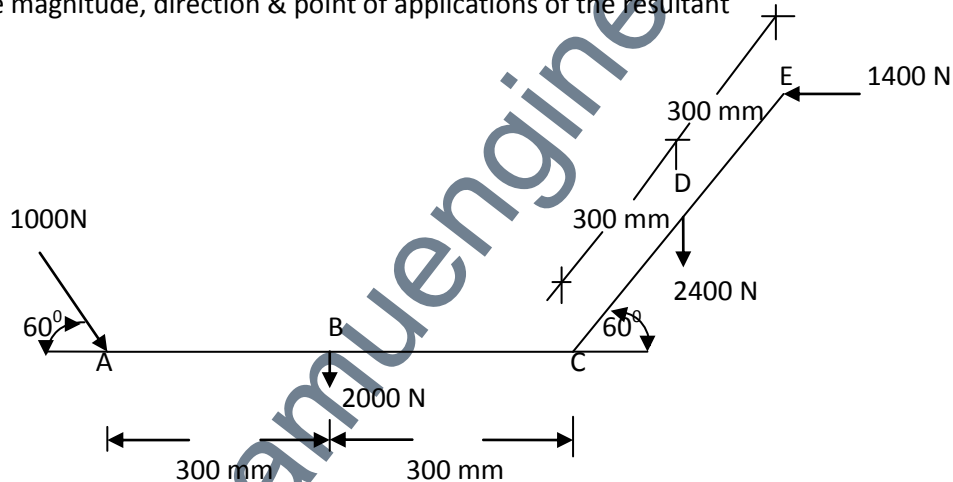
[Max Marks:40]

“Please check whether you have got the right question paper.”

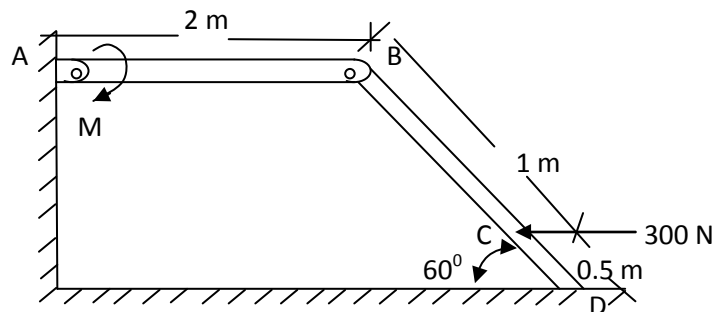
- N.B
- i) Q.No.1 is compulsory.
 - ii) Attempt any two questions from the remaining
 - iii) Figures to right indicate full marks.
 - iv) Assume suitable data, if necessary.

- Q.1 **Attempt any five** from the following 10
- a) Varignon’s principle.
 - b) State and explain Lami’s theorem.
 - c) Free body diagram.
 - d) Define resolution and composition of force.
 - e) State laws of friction.
 - f) Types of support explain with neat sketches.
 - g) Equilibrium.
 - h) Define moment of inertia.

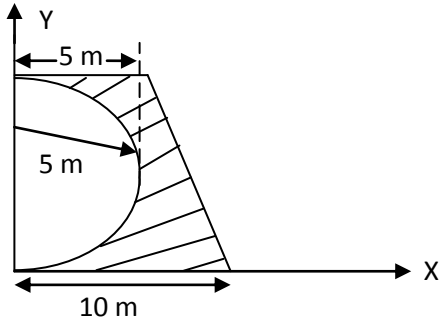
- Q.2 a) Determine the magnitude, direction & point of applications of the resultant 07



- b) A horizontal force 300 N is applied to the sloping bar whose bottom rests on a horizontal plane, as shown in fig. 08
 what couple M must be applied to AB to hold the system in equilibrium. What is the magnitude of pin reaction at B. assume the bars to be weightless and pins at A & B to be smooth.



- Q.3 a) State and explain parallel axis and perpendicular axis theorem. 05
 b) Determine the moment of inertia of shaded area as shown in fig. about the centroidal axis. Also find the radius of Gyration about the centroidal axis. 10



- Q.4 a) Differentiate between static and dynamic friction 03
 b) A body rest on a rough horizontal plane. To just move the body a pull of 450 N at 30° to the plane is applied. It is also observed that a push of 550 N is required at 30° to the horizontal to just move the body. Find the weight of the body and coefficient of friction. 12

- Q.5 Determine the forces in all the members of the truss as shown in fig. and also indicate the magnitude & nature of forces on the diagram of the truss 15

