

TERNA ENGINEERING COLLEGE, NERUL, NAVI MUMBAI

Engineering Mechanics

I. A. T. :- I

Division:- All

Marks : 20

Date : 02-09-2015

Note: - Q. No 01 is Compulsory

Morning

- Q. No 1 Write any Five
- a Define angle of friction and angle of repose. 02
 - b Explain difference between centroid and centre of gravity with suitable example. 02
 - c Define the term Free Body diagram. What is the significance of drawing a free body diagram? 02
 - d State and prove Lamis Theorem. 02
 - e Explain "Idealization in Mechanics" 02
 - f What is couple? State its properties. 02

- Q. No 2 Find the force F_4 completely so as to give the resultant of the system of the forces as shown in fig. 01 05

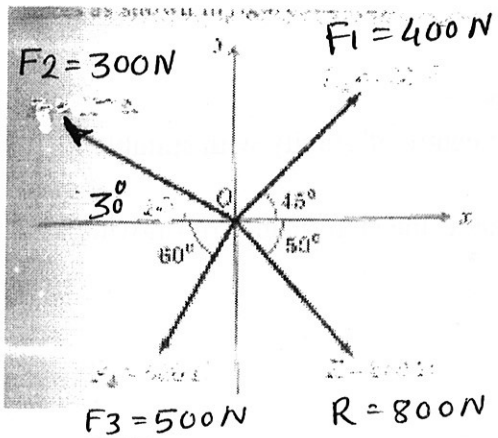
OR

- Q.No 3 Determine the reactions at all the supports of the beam AB as shown in fig 02 05

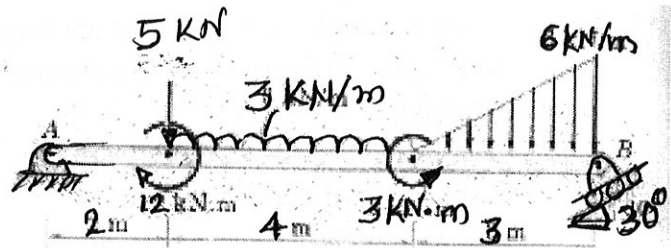
- Q. No 4 Locate the centroid of the shaded lamina as shown in fig. 03 05

OR

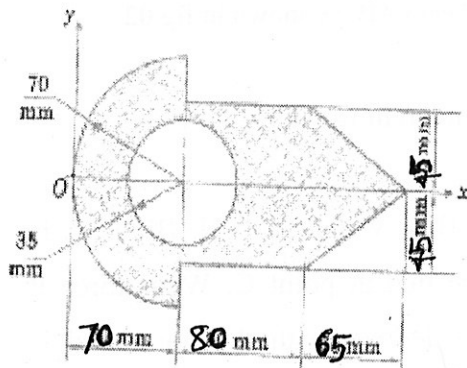
- Q. No 5 Block A of weight 300 N rests on a block B of weight 400 N. Block A is restrained from moving by a horizontal rope tied at point C. What force P applied parallel to the plane inclined at 30 degrees with the horizontal is necessary to start block B down the plane? Take coefficient of friction for all surfaces as 0.35. (Fig.04) 05



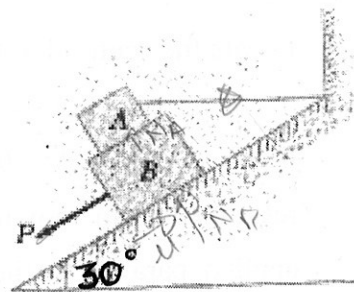
Q. 2 Fig.01



Q. 3 Fig.02



Q. 4 Fig.03



Q.5 Fig.04