VESIT

ENGINEERING MECHANICS

INTERNAL TEST-1 (Odd Paper)

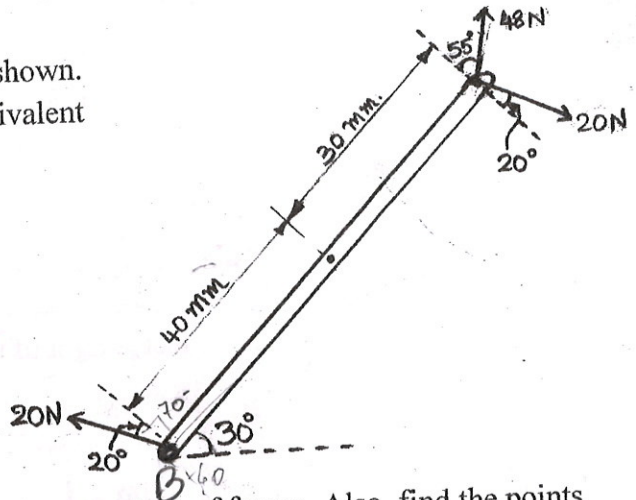
Time: 1 hour **Max. Marks: 20**

Note: Q1 is compulsory. Any one from Q2 & Q3. Take $g=9.81 m/s^2$

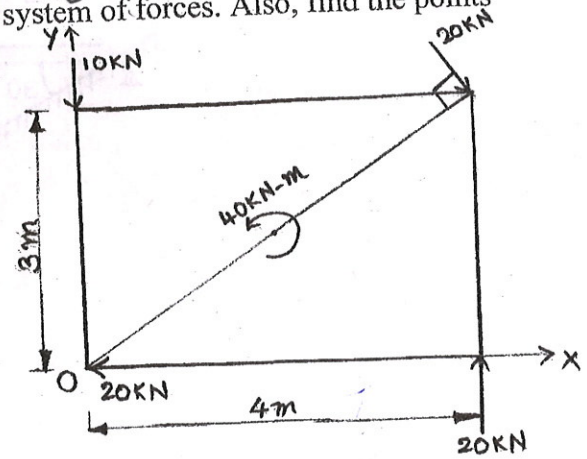
2X5=10 Marks

1. Answer the following.

   a. Three forces act on a lever as shown. Replace the three forces with an equivalent force couple system at B.

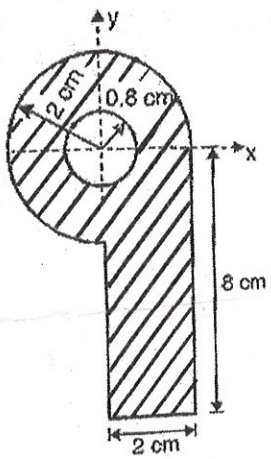


   b. Determine the resultant of the given coplanar system of forces. Also, find the points where resultant cuts X and Y axes.

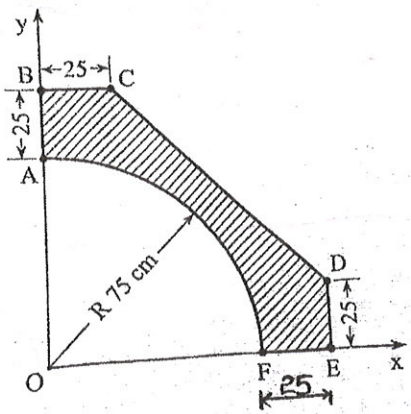


1X5=5 Marks

2. Determine Centre of Gravity of the shaded part



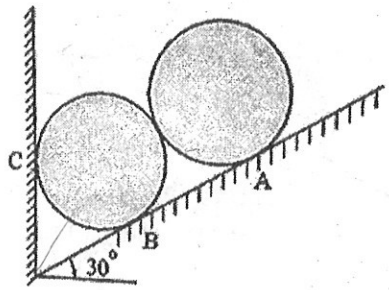
(OR)



ALL DIMENSIONS ARE IN CM.

3. Answer any **ONE**of the following. 1X5= 5Marks

a. Two identical rollers each of weight 100N are supported by an incline and a vertical wall as shown in the figure. Find reactions at points of contact A,B and C.



b. A bar AB of 12m long rests in horizontal position as shown in the figure on two smooth planes. Find distance 'x' at which a load P=100N is to be placed to keep the bar inequilibrium. Neglect weight of the bar.