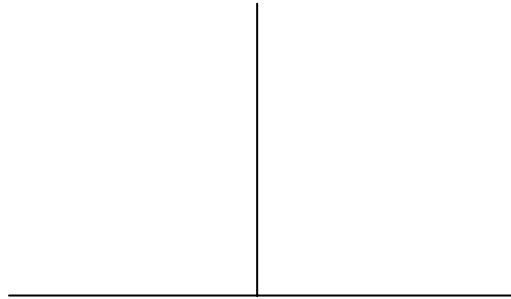


UNIT:III

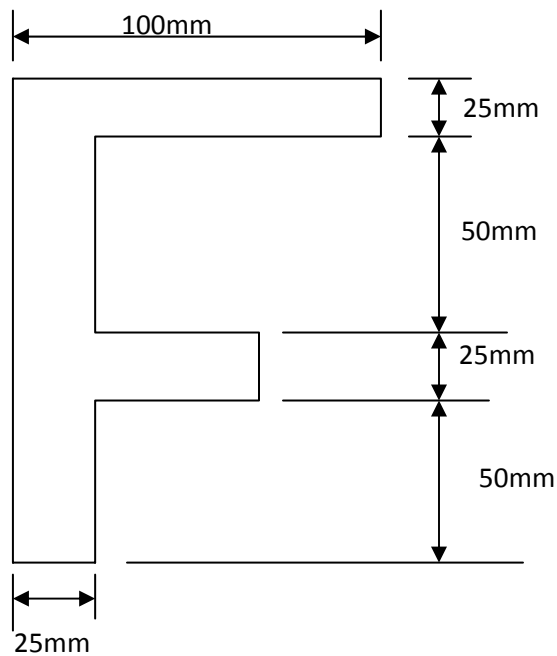
PROBLEMS ON CENTRE OF GRAVITY

Mr.Nurul Hassan

Q1.Determine the position of centroid of an area enclosed by two semicircles and their common diameter as shown in Fig.1.Take $r_1=180\text{mm}$ and $r_2=135\text{mm}$

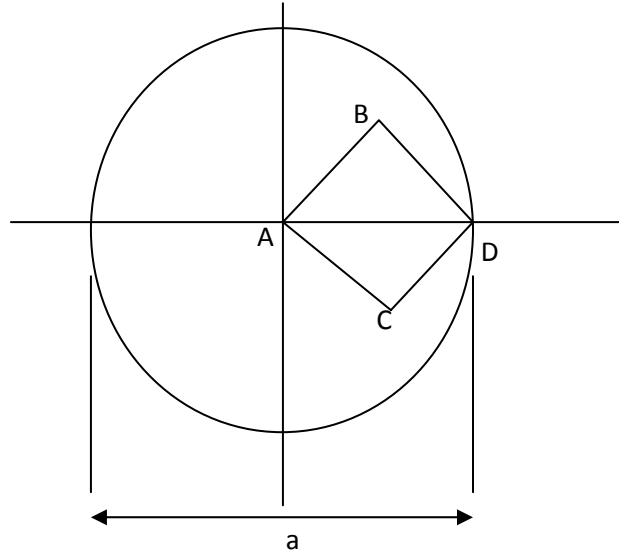


Q2.Determine by calculation the position of C.G.of the section shown in Fig.2

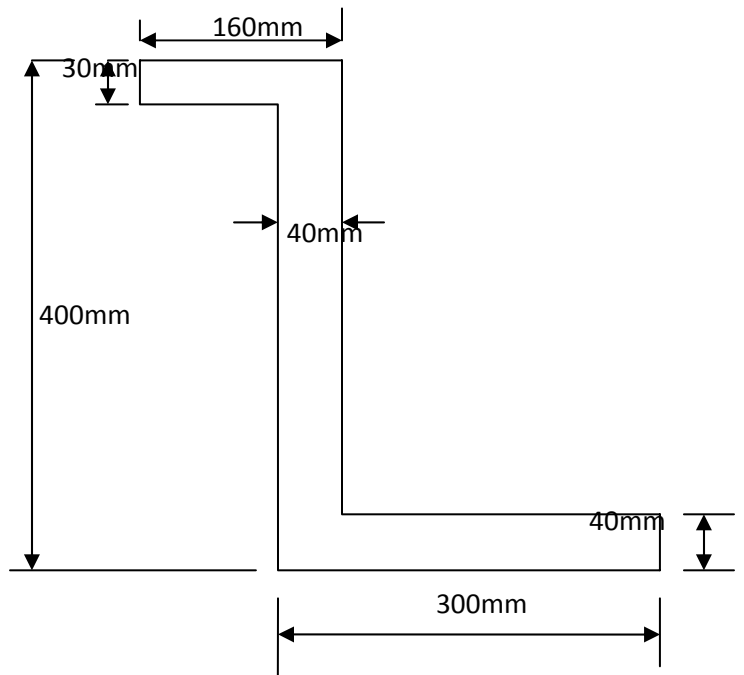


Q3.Find the co-ordinates of the centroid of the area obtained after removing a semicircle of radius 100mm from a quadrant of a circle of radius 200mm (Ans: 69.8mm and 127.2mm)

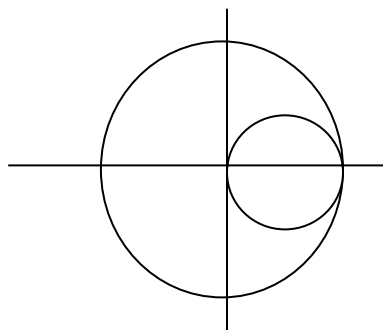
Q4. Find the centre of gravity of the shaded section from the Fig given below. ABCD is a square of side equal to radius of the circle



Q5. Find the centroid of Z section as shown in Fig.



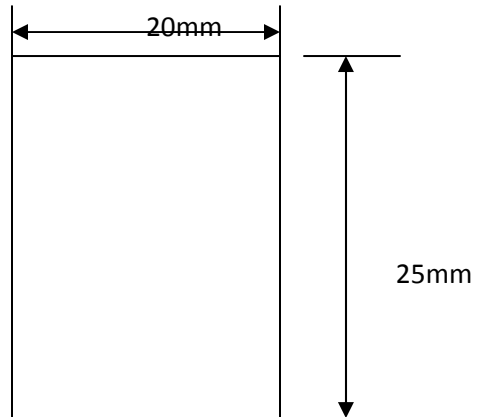
Q6. From a circular plate of diameter 100mm, a circular part is cut whose diameter is 50mm. Find the centroid of the remainder.



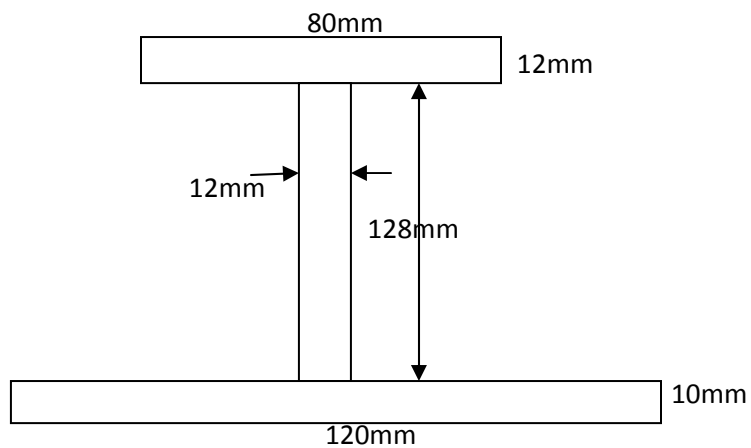
MOMENT OF INERTIA:

Q.1 Find the area moment of inertia of a triangle about its base and its C.G

Q.2. Find the moment of inertia of the shaded section



Q.3. Find MOI of the section about centroidal axes



Q.4.



Find MOI of the shaded area

Q.4. Find the mass moment of inertia of a right circular cone of base radius R , height H and mass M about its axis