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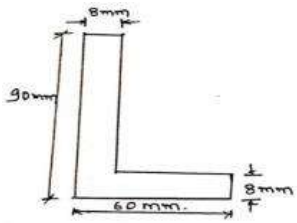
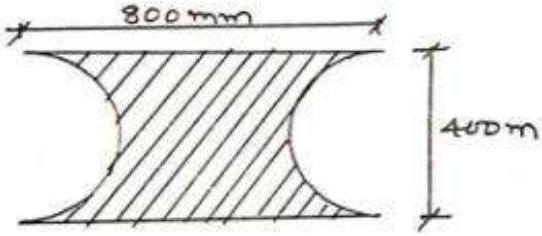
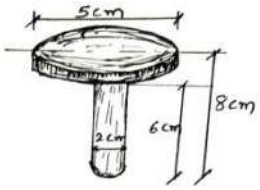
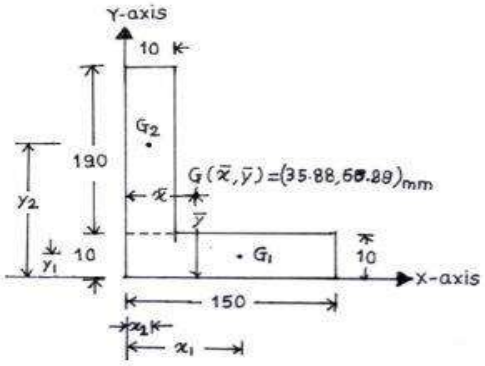
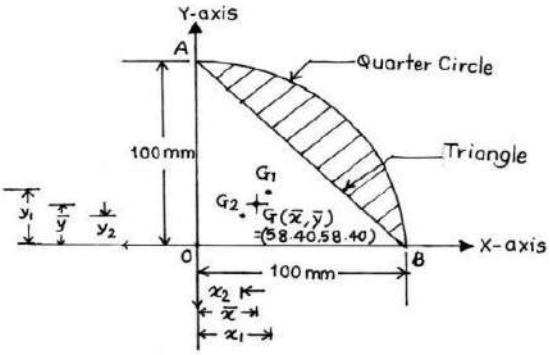
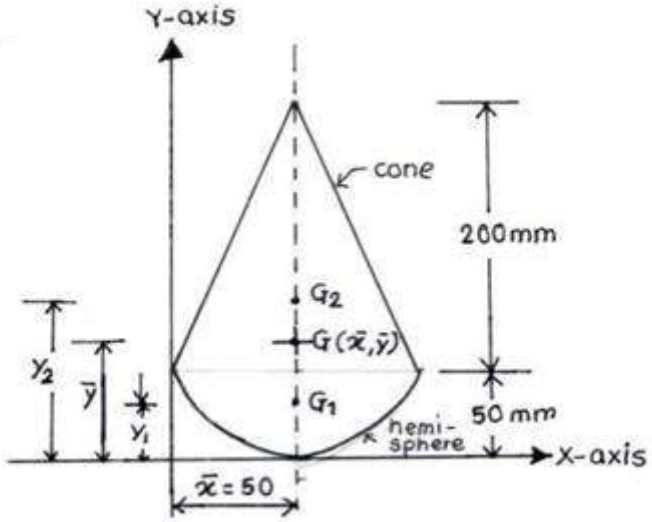
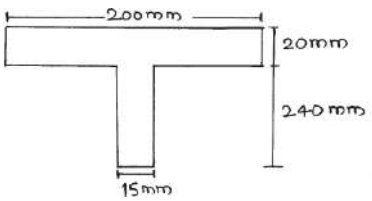
312312 - Engineering Mechanics (Sem II)

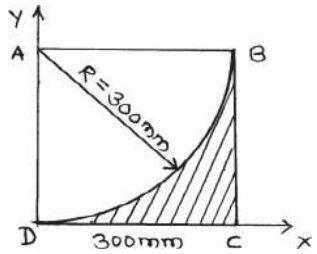
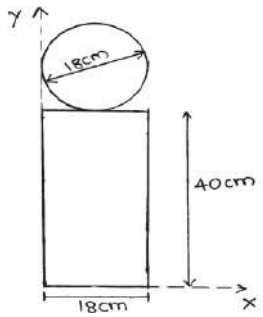
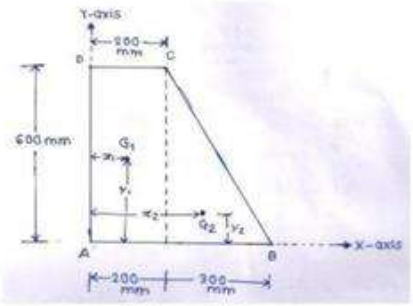
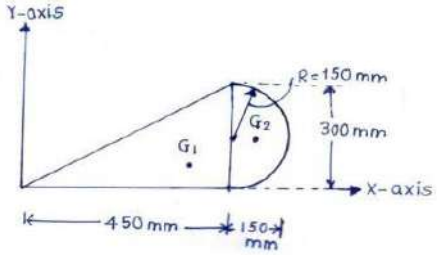
As per MSBTE's K Scheme

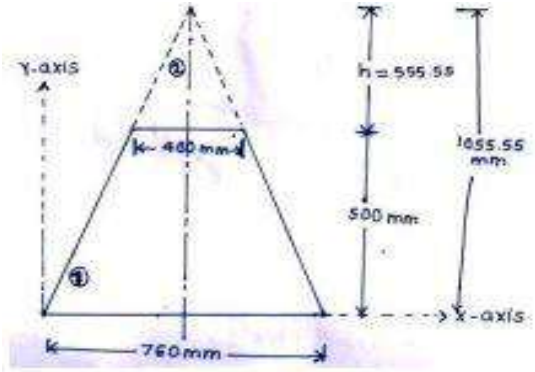
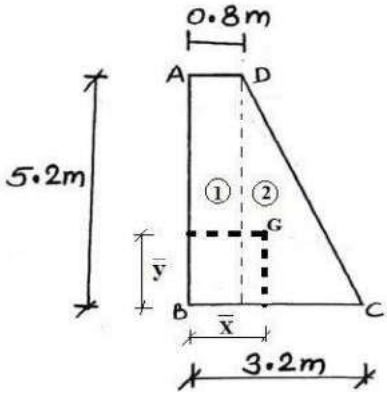
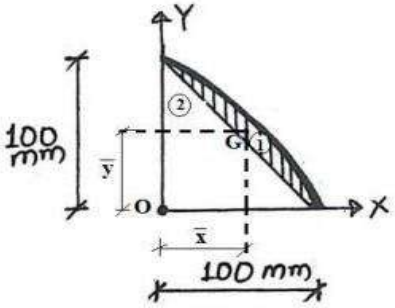
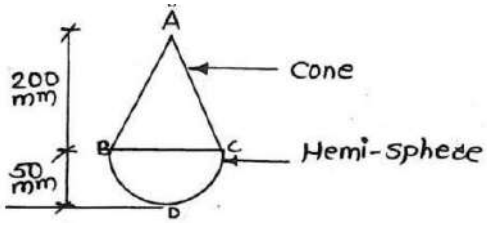
ME / AE / NK / PG

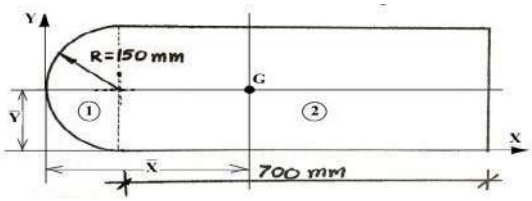
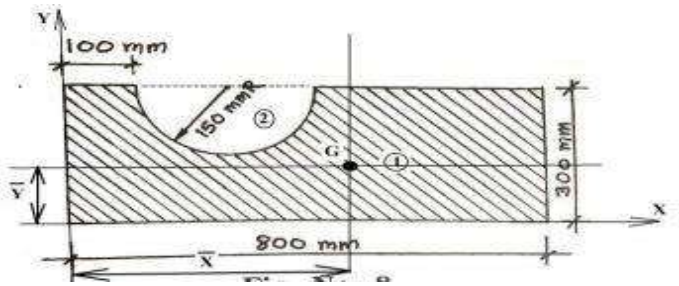
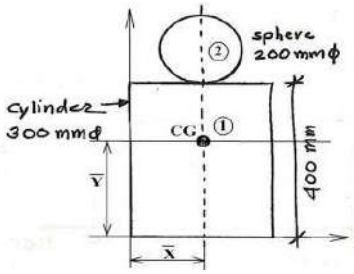
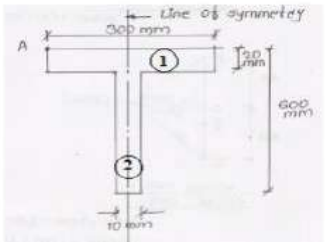
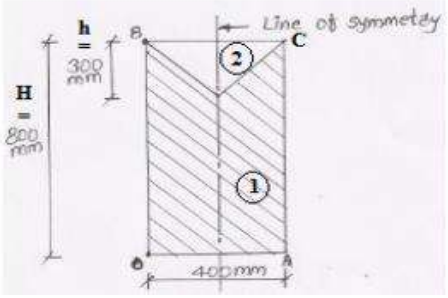
Unit V	Centroid and centre of gravity	Marks - 12

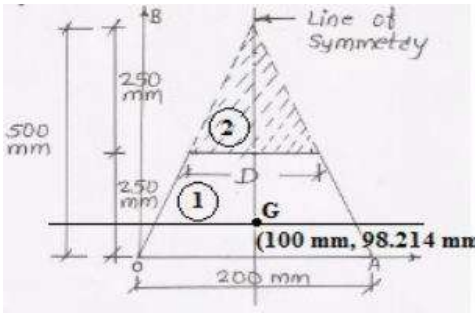
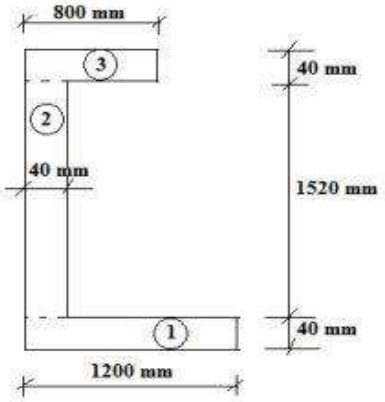
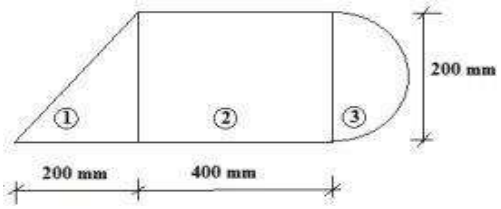
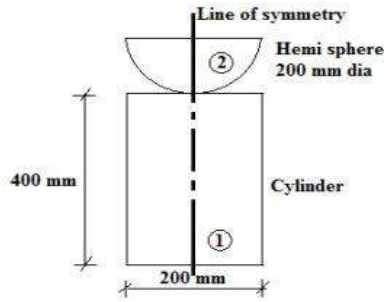
S. N.	MSBTE Board Asked Questions	Exam Year	Marks
1.	Define centre of gravity. How does it differ from centroid?	W-23	2M
2.	Find centroid for ISA 90 x 60 x 8 mm (L – Section) as shown in fig. 	W-23	6M
3.	Locate the position of centroid for the lamina shown in Fig. 	W-23	6M
4.	Find the y of the composite body given in Fig. 	W-23	6M
5.	Define centroid and centre of gravity.	S-23	2M
6.	Find the position of centroid of an unequal angle section with dimension 200 x 150 x 10 mm. longer leg is vertical.		

		S-23	6M
7.	**Locate centroid of shaded area as shown in Fig.** 	S-23	6M
8.	**A right circular cone of base diameter 100 mm and height 200 mm is placed on the hemisphere of the same diameter. Calculate its CG. Refer Fig.** 	S-23	6M
9.	**Define centre of gravity**	S-22	2M
10.	**Find position of centroid for T-section as sown in Fig.** 	S-22	6M

11.	ABCD is a square plate of uniform thickness having each side of 300mm. With A as centre and 300mm as radius, a quarter circular portion ABD is removed as shown in Fig. Locate the centroid of the remaining plate. 	S-22	6M
12.	A solid sphere of 18 cm in diameter is placed on the top of a cylinder which is also 18cm in diameter and 40cm high such that their axes coincide. Find the centre of gravity of the combination. 	S-22	6M
13.	Show the position of centroid of a quarter circle of radius 'R' with a neat sketch	W-22	2M
14.	Calculate centroidal position of the lamina of negligible uniform thickness shown in Fig. 	W-22	6M
15.	Locate the centroid of the composite area shown in Fig. 	W-22	6M

16.	**Calculate position of center of gravity of the frustum of cone as shown in Fig.** 	**W-22**	**6M**
17.	**Define centroid and centre of gravity.**	**S-19**	**2M**
18.	**Calculate the position of centroid from bottom left corner 'B' for a retaining wall as shown in Fig.** 	**S-19**	**6M**
19.	**Locate the centroid of shaded area as shown in Fig. with respect to origin.** 	**S-19**	**6M**
20.	**Locate centre of gravity of a composite solid body from tip 'A' of the cone as shown in Fig.** 	**S-19**	**6M**

21.	State the centroid of semi-circle and show it on the sketch.	W-19	2M
22.	Locate the centroid of a lamina as shown in Figure 	W-19	6M
23.	Locate the centroid of a shaded portion of a lamina as shown in Figure 	W-19	6M
24.	Locate the center of gravity for the solid as shown in Figure 	W-19	6M
25.	Define centroid and centre of gravity.	W-18	2M
26.	Calculate position of centroid for T section as shown in Figure with respect to 'A'. 	W-18	6M
27.	Calculate position of centroid of shaded area as shown in Figure 	W-18	6

28.	**A solid cone of 500 mm height and 200 mm base diameter. The portion above half of its height is removed. Locate the point at which remaining body can be balanced.** 	**W-18**	**6**
29.	**Define centre of gravity.**	**S-18**	**2**
30.	**Locate the position of centroid for the section shown in Figure** 	**S-18**	**6**
31.	**Locate the centroid of lamina shown in Fig.** 	**S-18**	**6**
32.	**Find the centre of gravity for the solid shown in Fig.** 	**S-18**	**6**

Thank You

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