SRM Institute of Science and Technology
College of Engineering and Technology
Department of Mechanical Engineering

18MES101L - Engineering Graphics and Design

Reg. No	RA2011031010006	**Ex. No**	6
Name of the student	Anas Ahmed Athey	**Week. No**	7
Department	CSE(IT)	**Title of the exercise**	**Projection of Solids - 2**
Section	T1	**Date**	20 Nov. 2020

Regular class problems

1. Draw the projections of the cylinder diameter 50 mm and axis length 80 mm when it is lying on the ground with its axis inclined at 45° to the wall and parallel to the ground. Draw its top, front and isometric views **(2 Marks).**

2. Draw the front, top and right side views of a cone of base diameter 40 mm and altitude 45 mm when its base kept parallel to the wall **(2 Marks)**.

3. A pentagonal pyramid of base edge 25 mm and axis length 60 mm rests on one of its base edges on ground such that the highest base corner 20 mm above ground. Its axis is parallel to the wall. Draw its top, front and isometric views **(2 Marks)**.

4. Two equal spheres of diameter 30 mm resting on the ground touching each other. Draw their projections when i) the line joining their centers is parallel to the both the wall and the floor. ii) The line of the centers is parallel to the floor and inclined at 30^0 to the wall **(2 Marks)**.

Extra problems for practice

1. A hexagonal pyramid of base edge 40 mm and altitude 80 mm rests on one of its base edges on the floor with its axis inclined at 30^0 to the floor and parallel to the Wall. Draw its projections.

2. Draw the Projections of a right circular cylinder of base diameter 30 mm and the axis length 45 mm when its rests on wall on its base.

3. Draw the projection of torus diameter 40 mm resting on the ground. The tube radius of the torus is 5 mm.

4. Draw the torus diameter 40 mm resting on the ground. The tube radius of the torus is 5 mm. Sphere of diameter 20 mm is kept inside the torus and the axis of the both in same line and parallel to the wall.

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1. **Exercise : 7** 2. **Date:** 20 NOV. 2020.

3. **Title** : Section of solids.

4. **Aim** : To draw the orthographic multi-view projection of sectioned solid like prisms/ cylinders and pyramids/ cones.

5. **Software used:** AutoCAD 2021.

6. **Introduction:** Section of solids:

→ An object (these a solid) is cut by some imaginary cutting plane to understand internal details of that objects. The action of cutting is called sectioning a solid & the plane of cutting is called section plane

6.3 Terminology (with sketch):

→ The area of the top and bottom bases is the same, & is called the base area, B. The area of the side is known as the lateral area, L. The surface area of solid right circular cylinder is made up of all 3 component. top, bottom & side.

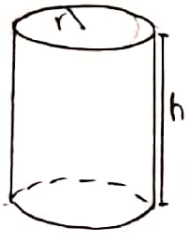
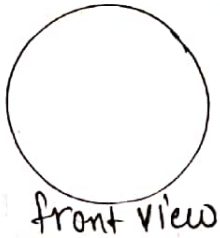
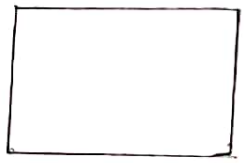
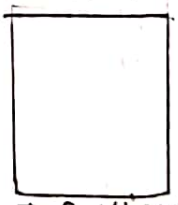


Fig.

6.2 Real time example - Picture


front view


Side View.


Top view

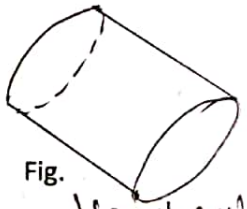


Fig. Isometric View.

7. **Procedure** (for solving question #):

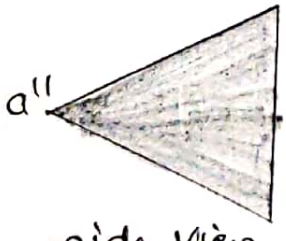
7.1 Question outline : Draw front, top & side view of cone. d=40mm h=45mm.

7.2 Object : cone.

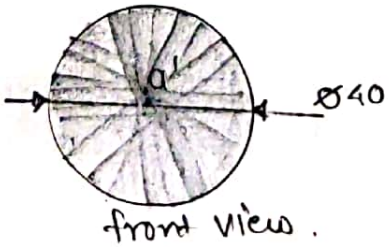
7.3 Resting on Conditions :

7.4 Other resting condition (if any) :

7.5 Other condition (cutting plane) : Base kept parallel to wall.



side view



front view.

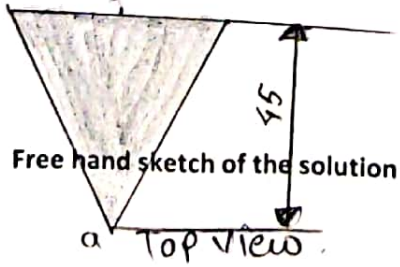


Fig. Free hand sketch of the solution to question #

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7.6 Procedure:

Step 1.

Select the 3-D modeling mode from setting then set unit, limit & zoom all the layout.

Step 2:- Select cone, In the front view draw a cone of D = 40 mm & h = 45 mm. then change into top view.

Step 3:- Click the model space & select the object.

Step 4:- Take the selected object to new layout & put all the three views top, front & side view.

Step 5:- Label it.

8. Commands used:

S.N.	Command	Use
1.	Units	To specify units, precision.
2.	Limits	To set grid.
3.	Zoom	To increase & decrease size.
4.	Cone	To draw the cone.
5.	Line	To create straight line.
6.	Style	To set format of text.
7.	Text	To write text.
8.	Model space	To generates the different views.
9.	DIM	To Accesses dimensioning.
-	-	-
-	-	-

9. Result:

Hence, by using AutoCAD, the projection of solids can be drawn.

Faculty Name		Date of Submission	
Signature		Marks	

Regular class problem

Ans 1]

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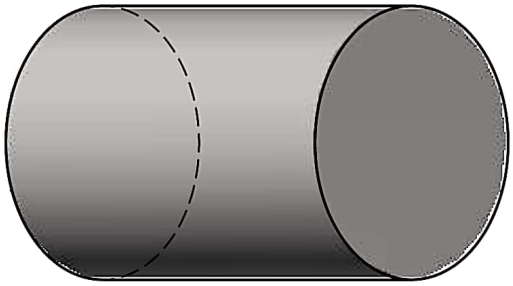
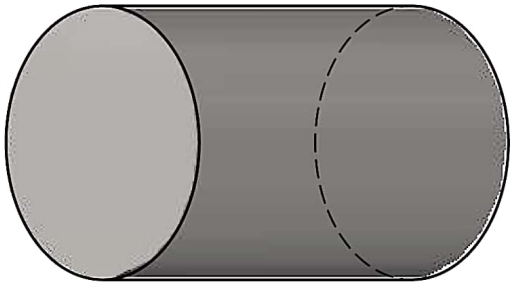
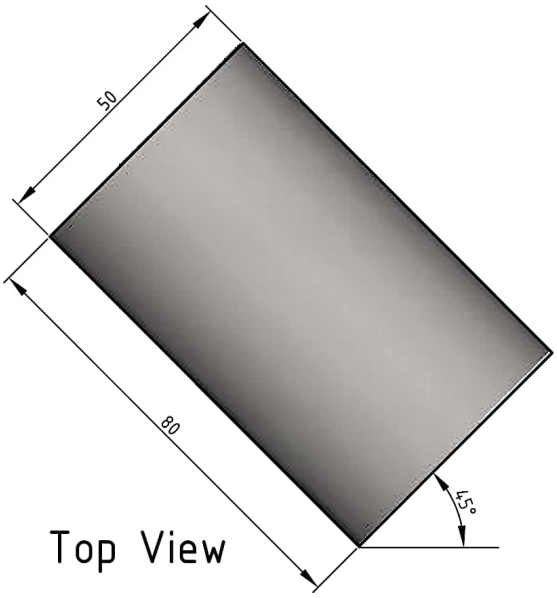


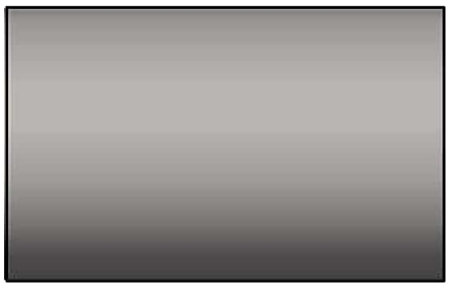
Front View



Side View



Top View



Isometric View

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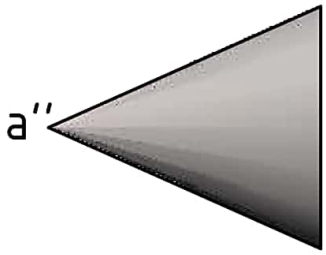
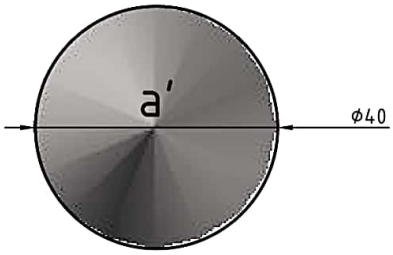
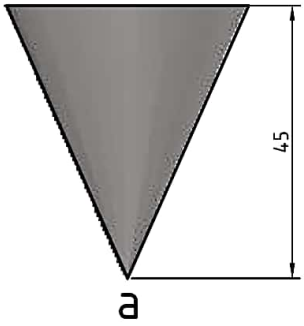
Ans. 2]



Side View



Front View



Top View

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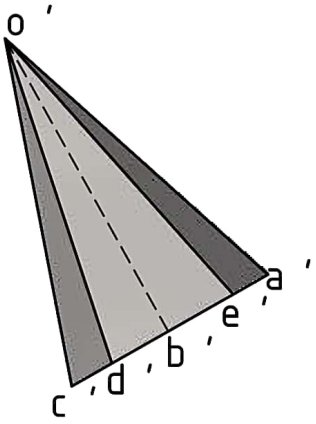
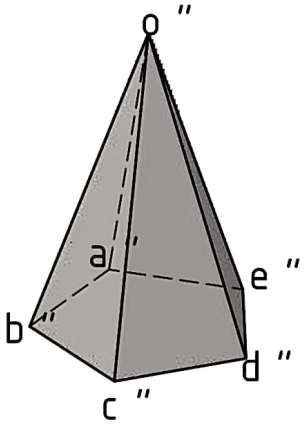
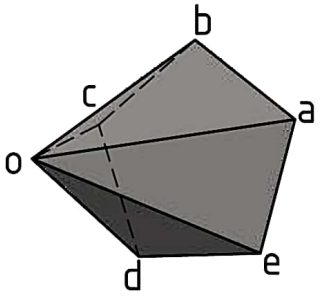
Ans. 3]



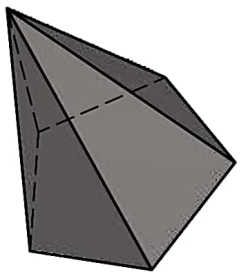
Front View



Side View



Top View



Isometric View

Extra Questions For Practice

Ans. 2]

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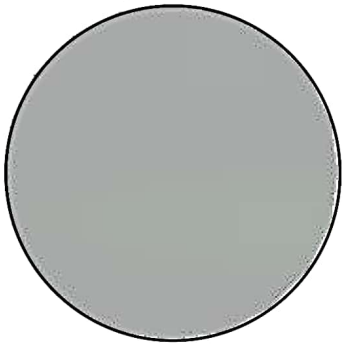
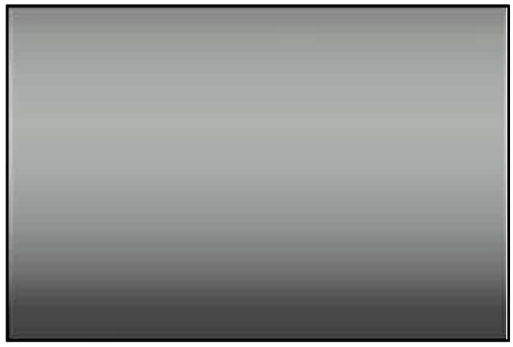
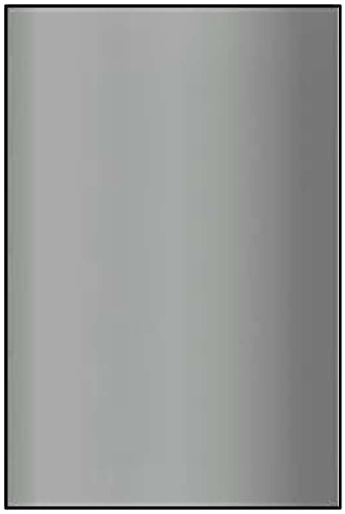


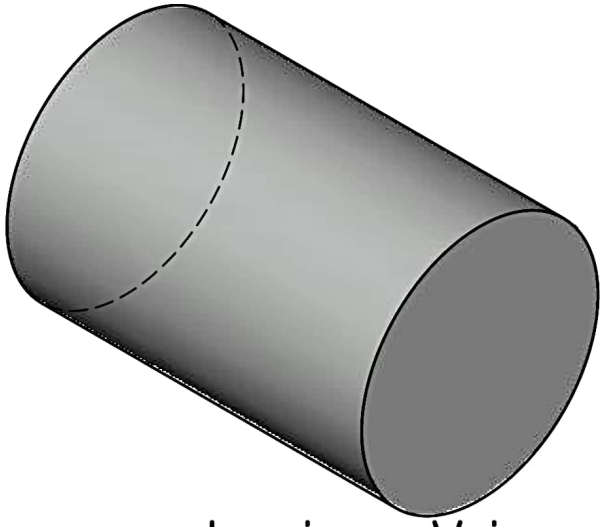
Front View



Side View



Top View



Isometric View

Ans. 3]

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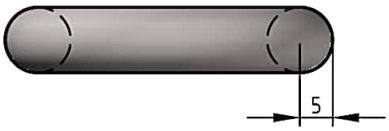
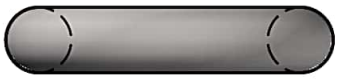
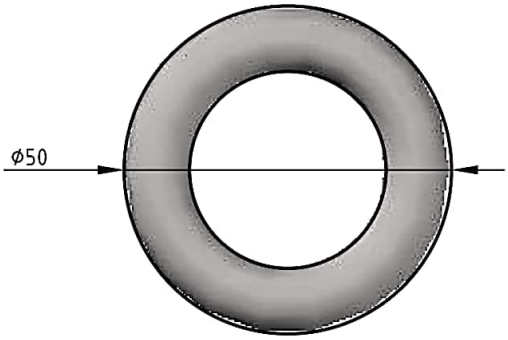


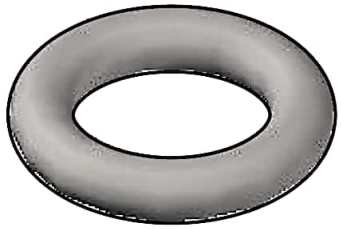
Front View



Side View



Top View



Isometric View