1. Exercise : 6

2. Date: 22/11/20

3. Title : Combinations of solids: CSG, and advanced solid modelling.

4. Aim : To model simple combination of solids by Constructive Solid Geometry (CSG), and some advanced models using sweep, loft, shell solid models and obtain their projections.

5. Software used: AutoCAD - 2020

6. Introduction: CSG, Advanced solid modelling

CSG :- It allows a modeler to create a complex surface or object using Boolean operators to combine simpler objects, potentially generating visually complex objects. Mostly done by combining a few primitive objects and figures.

6.2 CSG sketch):

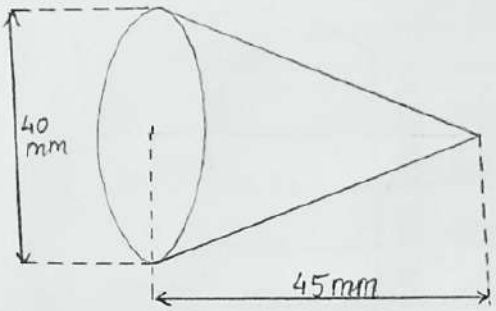


Fig.

6.2 Real time example - Picture

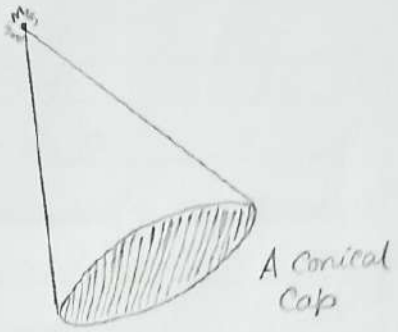


Fig.

7. Procedure (for solving question #): Draw the front, top and right side views of a cone of base diameter 40 mm and altitude 45mm

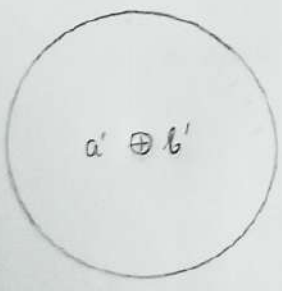
7.1 Question outline :

7.2 Object : A cone

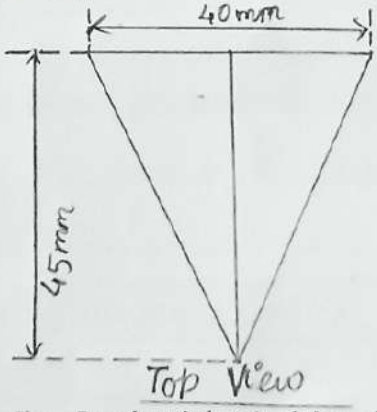
7.3 Resting on Conditions : Base kept parallel to wall.

7.4 Other resting condition (if any) : —

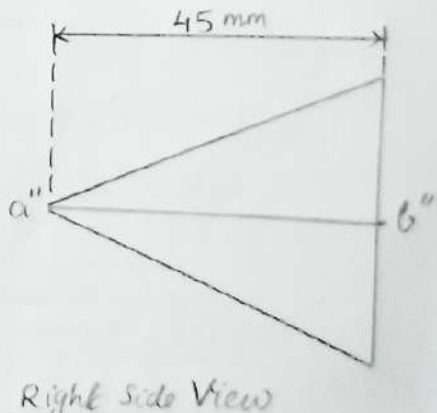
7.5 Other condition (if any) : —



Front View



Top View



Right Side View

Fig. Free hand sketch of the solution to question #

7.6 **Procedure:**

Step 1.

After selecting suitable 'Units', 'Limits' and 'Zoom', remove grid view, and from workspace switching switch to 3D Modelling'.

Step 2: Select 'Front View' and then select 'Cone'. Draw a cone of diameter 40 mm and specify height as 45 mm

Step 3: After cone is drawn, go to 'View' option, under that 'Base' and after that select 'From Model Space'. Set a name to the layout.

Step 4: Select the cone and in layout mark the 'Front view', 'Top View' and 'Right Side View' of the selected cone. Annotate and name the edges.

8. **Commands used:**

S.N.	Command	Use
1.	UNITS	To set precision to '0'
2.	LIMITS	To set the boundaries of work space.
3.	ZOOM	To zoom to required space.
4.	CONE	To draw the cone.
5.	LINE	To draw reference line.
6.	DIMENSIONS	To specify the dimensions of cone.
7.	TEXT	To input text in figures.
8.	SCALE	To increase or decrease the size of selected object.
9.	ANNOTATE	To set the dimensions.
.		

9. **Result:**

Using the above commands and following the above procedures, the cone is successfully created using AutoCAD - 2020.

Faculty Name	SARAVANAKUMAR R	Date of Submission	23/11/20
Signature		Marks	