



1. Exercise : 6

2. Date: 11 Jan. 2021

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: Auto CAD 2021.

6. Introduction: CSG, Advanced solid modelling - II

- CSG is a combination of solids formed by combining two or more different solids.
- Advanced solid modelling is the most advanced method of geometrical modelling in 3D.

6.2 CSG sketch):

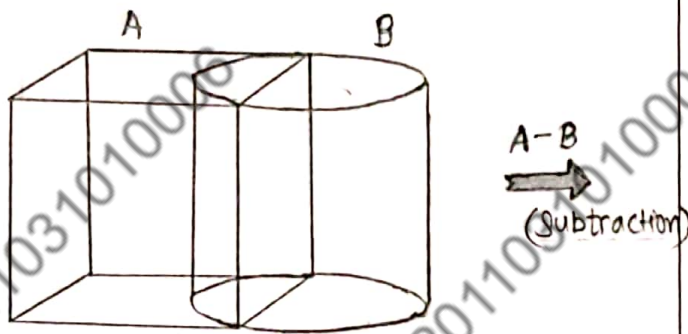


Fig.

6.2 Real time example - Picture

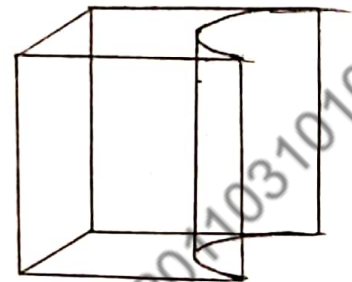


Fig.

7. Procedure (for solving question # ):

- 7.1 Question outline : Drawing model of given Object.
- 7.2 Object : Spring.
- 7.3 Resting on Conditions : On HP in front view.
- 7.4 Other resting condition (if any) : Base radius is less & top radius is more
- 7.5 Other condition (if any) : -

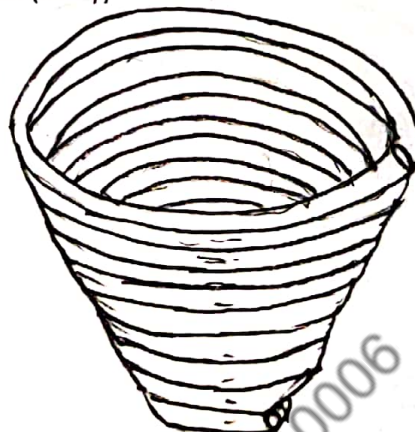


Fig. Free hand sketch of the solution to question #

### 7.6 Procedure:

#### → Step 1.

Set the limits, units and zoom (A11) in drawing area.

Step 2:- In Command box, Type Helix then specify the base point.

Step 3:- Specify base diameter 25 and for top 50mm.

Step 4:- Specify no. of turns 3 and height 10 mm.  
then press Enter to specify the same value.

Step 5:- Now, we have to draw a circle with diameter 5 mm.

Step 6:- Now, Sweep, select the object, to sweep then path.

### 8. Commands used:

S.N.	Command	Use
1.	Units	To specify units, precision.
2.	Limits	To set drawing area & grid.
3.	Zoom	To increase & decrease the size.
4.	Helix	To create a 2D or 3D spring.
5.	Circle	To create a circle.
6.	Sweep	To create 3D solid spiral shape.
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

### 9. Result:

The required objects were constructed in AutoCAD 2021 software.

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Signature		Marks	

