Record of Ex. No: 2 – Conics and Special Curves

Date of experiment: 22.04.2021 **Date of submission: .**04.2021

Name: Kunal Keshan S **Department:** ECE – A **Roll No:** RA2011004010051

Aim:

To draw ***special curves*** of specified dimensions derived from conic sections using AutoCAD.

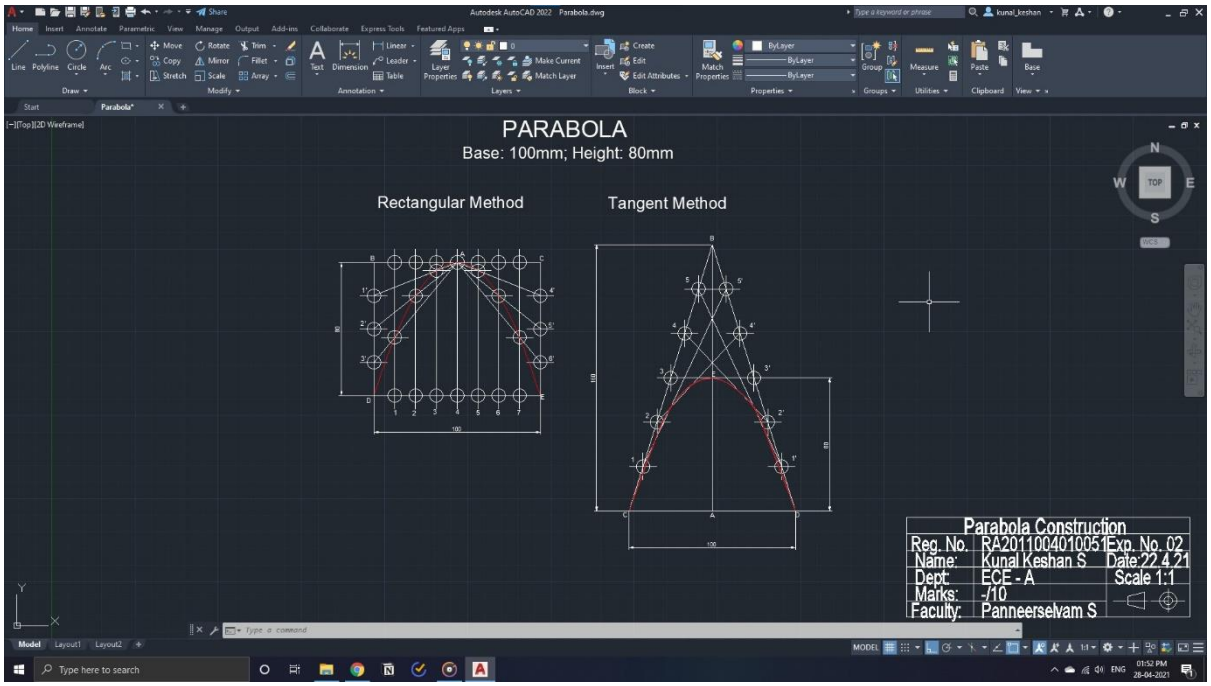
Software used: AutoCAD.

Procedure:

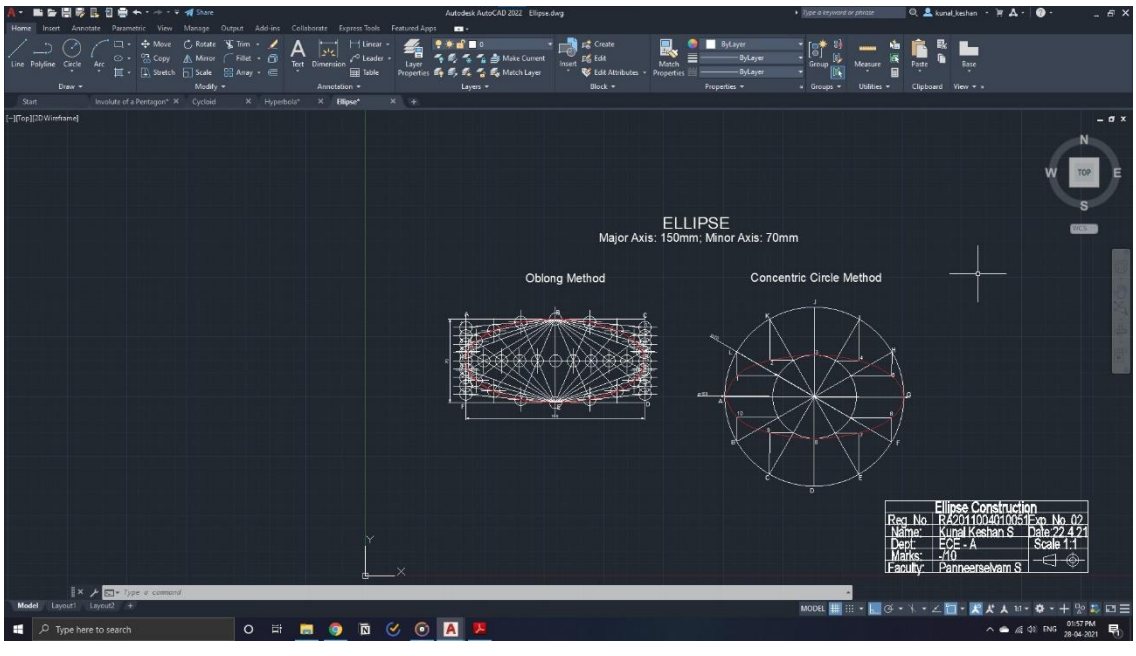
Commands Used	Purpose of Command
LINE	Used to draw lines of required length.
SPLINE	Used to draw smooth curves that pass through a set of predefined points.
CIRCLE	Used to draw circle of required radius or diameter.
MIRROR	Used to mirror an object or set of objects with respect to a selected plane.
DIVIDE	Used to divide an object into equal number of parts by placing points in-between.
DDPTYPE	Used to change the style of the marked points.
POINT	Used to mark a point anywhere on the sheet.
EXPLODE	Used to break an object into its component objects.
ARRPOLAR	The **polar array** will consider the same distance for all the copied objects by default. The greater the gap between the center of axis and object, the objects will be copied circularly at the same distance from the axis.

OFFSET	The offset command is used to create parallel lines, concentric circles, and parallel curves.
TEXT	Used to add text in the sheet.
TRIM	Used to remove objects.
POLYGON	Used to draw polygons with required/specified number of sides.
RAY	Creates a linear object that starts at a point and continues to infinity.

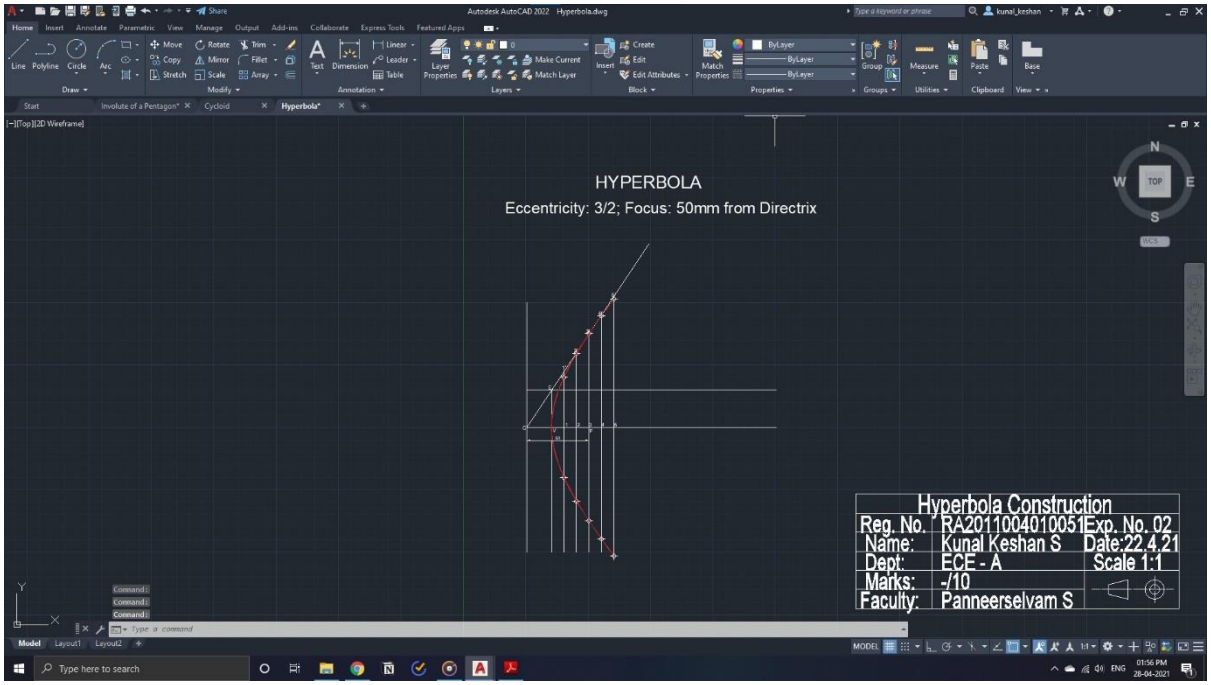
Question 1: Draw a parabola of base 100 mm and height/ length (along the axis) 80 mm, by
i) Rectangular method, **ii)** Tangent method.



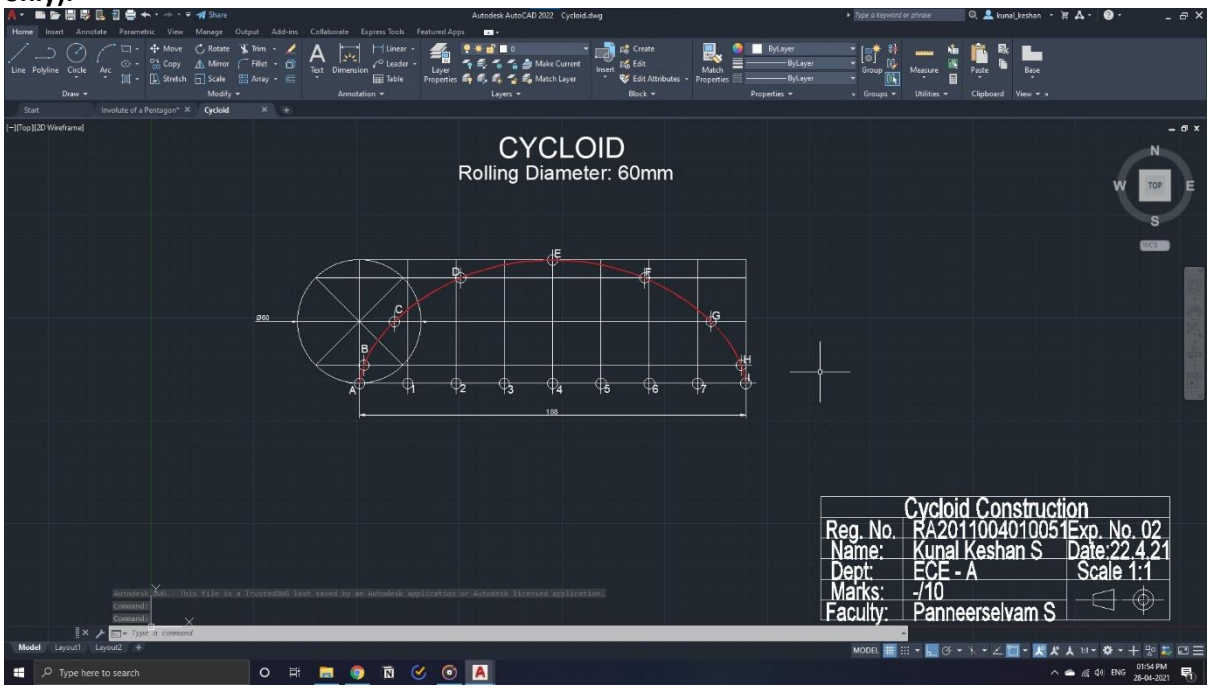
Question 2: Draw an ellipse of major diameter/ axis 150 mm and minor diameter/ axis 70 mm by
i) Oblong method, **ii)** Concentric Circle method.



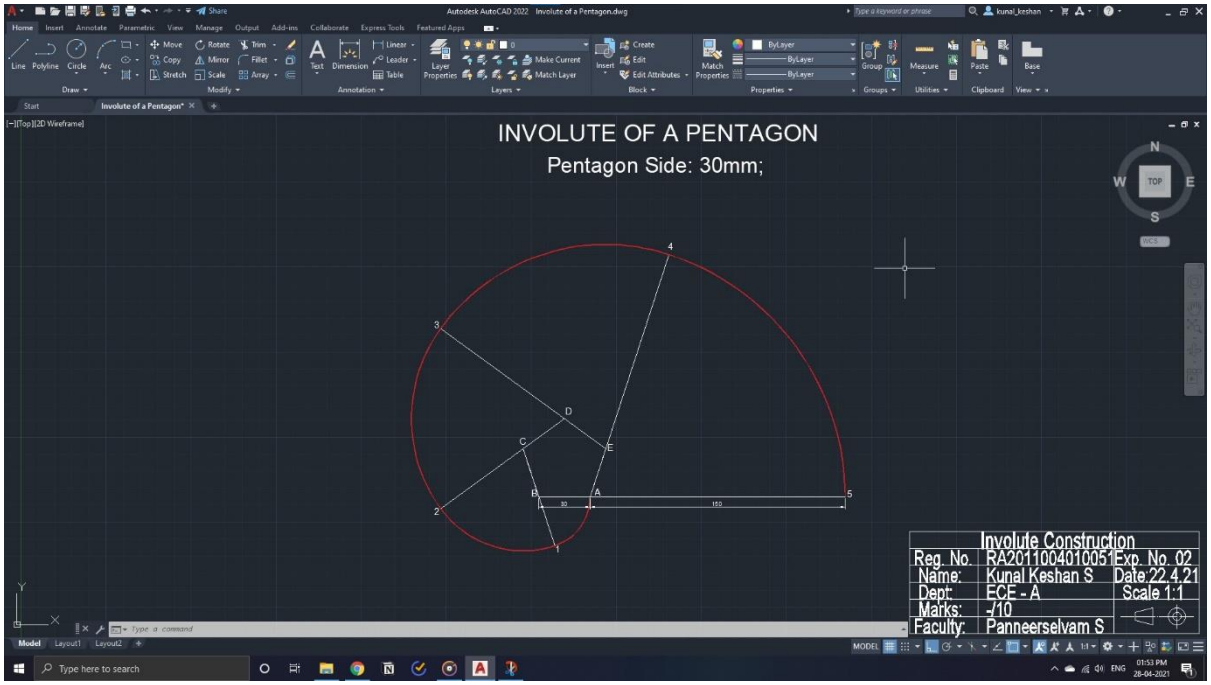
Questions 3: Draw a hyperbola by eccentricity method with eccentricity, e= 3/2 whose distance of focus is at 50 mm from its directrix.



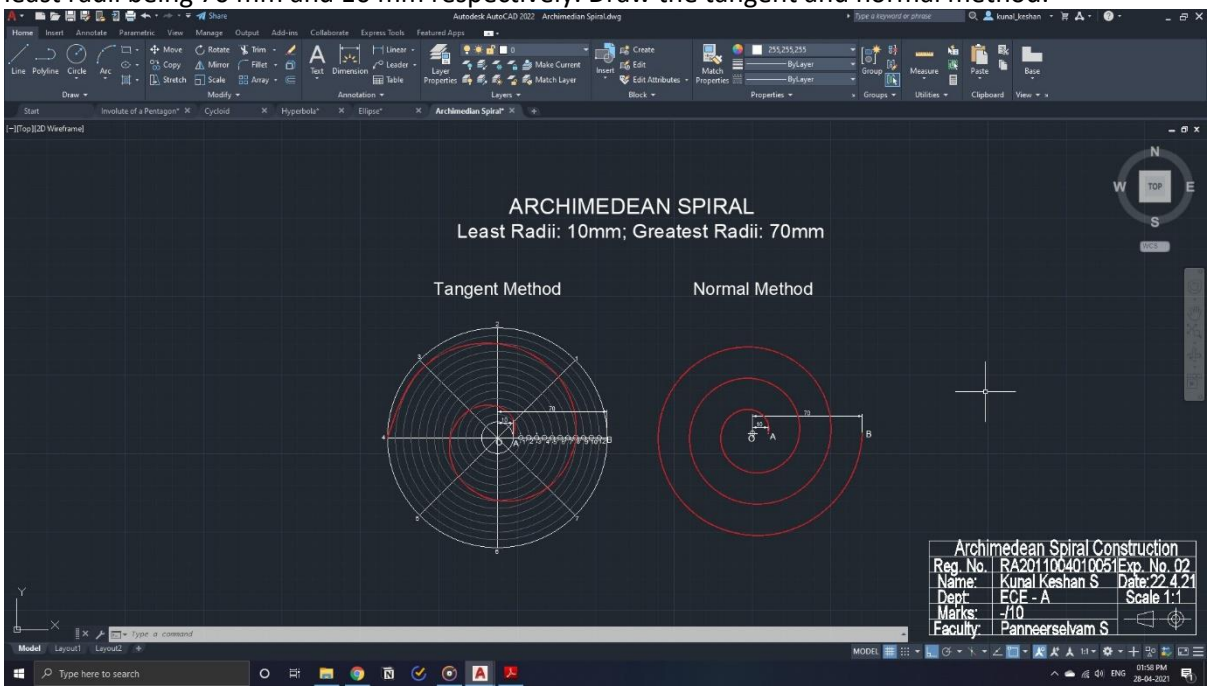
Questions 4: Construct a cycloid with rolling circle diameter 60 mm that rolls for one complete revolution, with trace point A, initially at the bottom. **(Epi-cycloid, and hypo-cycloid, demonstration only).**



Questions 5: Draw the Involute of a regular pentagon (or any polygon) of side 30 mm, wound/ unwound for one complete turn. **(Involute of a circle demonstration only).**



Questions 6: Draw an Archimedean spiral for one and half convolution. The greatest and the least radii being 70 mm and 10 mm respectively. Draw the tangent and normal method.



Result:

The specified special curves were drawn with the required dimensions.