Sardar Vallabhbhai National Institute of Technology Surat

Department of Civil / Mechanical Engineering

B.Tech. (Divisions A-G) Semester- I

Mid-Semester Examination, January 2022 (Mode of Exam: Online)

Subject: Engineering Drawing (CEME 105)

Date: **05-02-2022** Duration: **9.30 am to 11.30 am** Max. Marks: **30**

Instructions:

- 1. Figures to the right indicate maximum marks
- 2. Assume suitable data if necessary and mention clearly the same.
- 3. Use both sides of drawing sheet. Write your Roll No., Admin. No., Class, Subject and Name of Exam on top of drawing sheet and put your signature. Give page No. and make signature at top of on all other drawing sheet if you have used more than one drawing sheet. Prefrably the size of drawing should be A3 size (A4 size drawing sheet will also do if A3 is not available)
- 4. After completing all answers, scan drawing sheet(s) and create single .pdf file for the same.

 The name pdf file should be Your Roll No. (i.e. Ax or Bx or Cx or Dx or Ex or Fx or Gx)
- 5. Upload the *.pdf file of drawing sheet in your google classroom or mail to your respective teavher. Late received answer sheets will not be considered.
- 6. In case of any query kindly contact your class Teacher on phone.
- 7. All pages of the drawing sheets must contain your Admin. No. and name at top.

Q.1 Attempt any three

[15]

- (a) A point P is 20 mm and 30 mm respectively from two straight lines which are at right angles to each other. Draw a rectangular hyperbola from P within 6 mm distance from each line.
- (b) Construct an ellipse when its major axis is 90 mm and minor axis 60 mm by using concentric circle method
- (c) Draw locus of a point on the periphery of a circle which rolls on a curved path. Take diameter of rolling circle 55 mm and radius of directing circle i.e. Curved path, 80 mm.

 Draw the curve and name it.
- (d) Draw a spiral of one convolution. Take distance from anchor to the farthest point is 45 mm.
- (e) Draw Involute of a circle of diameter of 60 mm. String length is equal to the circumference of circle.
- Q. 2 (a) A line AB is 80 mm long. It's F. V. and T. V. make 45° and 60° inclinations with X-Y **[08]** line respectively. End A is 15 mm above HP and VT is 20 mm below XY line. Line is in first quadrant. Draw projections, find inclinations with HP and VP. Also locate HT.
 - (b) A regular pentagon of 35 mm sides is resting on HP on one of its sides while its surface makes an angle of 20° with HP. Draw projections when side in HP is 30° inclined to VP.

A tank of $6m \times 5m \times 4$ m height is to be strengthened by four stay rods from each [07] (b) corner by fixing their other ends to the flooring, at a point 1.2 M and 0.7 M from two adjacent walls respectively as shown in the figure (Only one Corner Shown). Determine graphically length and angle of rod with flooring for one corner.

