

Roll No: 

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**B-TECH**  
**(SEM VII) THEORY EXAMINATION 2021-22**  
**COMPUTER AIDED DESIGN**

*Time: 3 Hours**Total Marks: 100***Note:** 1. Attempt all Sections. If require any missing data; then choose suitably.

**SECTION A**

**1. Attempt all questions in brief.****2 x 10 = 20**

a.	Explain DVST with neat Sketch.
b.	Name the Graphics standards available in computer graphics?
c.	Write short note on blobby objects.
d.	What do mean by composite transformation?
e.	Write short note on B-rep.
f.	Write difference between interpolation and approximation.
g.	What are the types of elements in FEM?
h.	Explain 3D-Tranformations.
i.	What are the common inquiry commands used in AutoCAD?
j.	Why raster scan display preferred in CAD.

**SECTION B**

**2. Attempt any three of the following:****10 x 3 = 30**

a.	What are the role s played by designer and computer a CAD process?
b.	Explain Bresenhams Circle drawing Algorithm?
c.	Briefly explain how following commands work in AutoCAD with Example: (1) Explode (2)Move (3)Mirror (4) Layer.
d.	Explain type of coordinate system available in CAD.
e.	Define FEM? What are the steps in finite element analysis explain in detail.

**SECTION C**

**3. Attempt any one part of the following:****10 x 1 = 10**

(a)	What is Design Process? Explain briefly the steps involved in computer aided design process.
(b)	What is the flat panel display? Explain its types.



Roll No: 

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

4. Attempt any one part of the following: 10 x 1 = 10

(a)	Explain the various 2D Transformations.
(b)	Draw a circle using Bresenham’s Circle drawing algorithm with centre (-3, 8) and radius 12 units.

5. Attempt any one part of the following: 10 x 1 = 10

(a)	What are the properties of Bezier curves and B-spline curves?
(b)	Given a Bezier curve with 4 control points- $B_0[1\ 0]$ , $B_1[3\ 3]$ , $B_2[6\ 3]$ , $B_3[8\ 1]$ Determine any 5 points lying on the curve. Also, draw a rough sketch of the curve.

6. Attempt any one part of the following: 10 x 1 = 10

(a)	Briefly explain the different schemes used to generate a solid model.
(b)	Write short notes on <div style="margin-left: 20px;">                     (i) Quadric and Superquadric surface                      (ii) Sweep Representation.                 </div>

7. Attempt any one part of the following: 10 x 1 = 10

(a)	<p>A thin steel plate of uniform thickness 25 mm is subjected to a point load of 420N at mid depth as shown. The plate is also subjected to self weight. If Young’s modulus, <math>E=2 \times 10^5 \text{N/mm}^2</math> and unit weight density <math>0.8 \times 10^{-4} \text{N/mm}^2</math>. Calculate (i) Displacement at each nodal point (ii) Stresses in each element.</p> <div style="text-align: center; margin: 10px 0;"> </div>
(b)	Explain in detail the advantages of finite element method over other numerical analysis method.