C.A.D./C.A.M. (CBCS Pattern) M.Tech. First Semester (Old-CBS Pattern) CBCS

904 / PCDS13 - Computer Graphics For CAD/CAM

P. Pages : 2 **GUG/W/18/10935**

Time : Three Hours * 3 0 6 6 * Max. Marks : 70

Notes : 1. All questions carry equal marks.
2. Answer **Any five** questions.
3. Due credit will be given to neatness and adequate dimensions.
4. Assume suitable data wherever necessary.
5. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) Explain the working of raster scan graphics terminal in detail. What is the role of frame Buffers in it. **7**

b) Explain product design cycle. Also explain all design stages in CAD. **7**

2. a) What is the difference between regular CRT's and flat screen CRTs. **6**

b) Write a algorithm to generate circle using Bresenham's principle. Explain with suitable example and show it on graph paper. **8**

3. a) Explain 2D shear transformation. **4**

b) A quadrilateral having vertices at (3,5), (7,6), (5,8) and (2,4) is to be reflected about a line having x & y intercepts at (-4) & (-3) respectively. Plot figure and find total transformation matrix. Also find final vertices position of the quadrilateral, after transformation. **10**

4. a) What are homogeneous co-ordinates. **4**

b) Explain C.S.G. Modeling with suitable example. **5**

c) Explain Bezier curve. Enlist various properties of Bezier curve and it's application. **5**

5. a) Explain B-spline curve. **6**

b) Explain the concept of following modeling technique in brief. **8**

i) Wireframe modeling.

ii) Surface modeling.

iii) Solid modeling.

6. a) Differentiate feature Based, parametric and variational modeling. **6**

b) Determine the five points on the Bezier curve if $B_0[1,1]$, $B_1[2,3]$, $B_2[4,3]$, $B_3[3,1]$ the vertices of a Bezier polygon at $t=[0,0.2,0.4,0.6,0.8]$ **8**

7. a) What is sweep & Explain linear and Non-linear sweep. **7**

b) What is viewing transformation. Differentiate between window and view port? **7**

8. Write short notes on **any three.** **14**

i) NURBS.

ii) Frame Buffers.

iii) B-Rep.

iv) Constructive solid Geometry.

v) 3-D Transformation.

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