**METHODIST COLLEGE OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF CSE**

**V SEMESTER CSE(A & B SECTION)**

**COMPUTER GRAPHICS**

**QUESTION BANK**

**LA :- LONG ANSWERS**

**SA :-SHORT ANSWERS**

**UNIT I**

**PART I**:- 1) Application of computer Graphics[SA]

 2) Difference between Computer Graphics and Image processing[SA]

 3) Graphics System[definition,SA,LA]

 4) CRT[LA]

 5) Human eye vision[SA]

 6) Raster graphics system[SA]

 7) Graphics system[LA]

 8) Difference between random and raster scan display[LA]

 9) Difference Interlaced and non-interlaced display[LA]

 10) Physical and synthetic images or how light travels and how objects are formed[SA]

 11) Image formation model[2M]

 12) Pinhole camers, human visual system[ 4 marks each]

 13) Synthetic camera model[LA]

 14) Pen plotter model

 15) Position of camera specification[2 or 3 marks]

 16) Pipeline architecture, graphics pipeline, scene graph, rasterization[SA,LA,definition

 17) Performance characteristic[very SA]

**PART II :-** 1) Programming 2D Applications[SA, glut functions can be asked]

2) Coordinate system

 3) OPENGL API[LA], graphics functions[LA]

 4) Different types of 2D primitives[LA], text, curved objects[each SA]

 5) Color[LA], RGB color[LA or SA], indexed color[LA or SA]

 6) Viewing [LA]

 7) Control Functions[LA]

 8) Aspect ratio, viewport [definition or very SA]

**UNIT II**

**PART I:-** 1) Logical devices[SA], Input modes[SA]

 2) \*\*\*Display list with pseudocode[LA]

 3) Programming event driven input[LA] with mouse and keyboard event programs

 4) menus[may be]

 5) Picking[SA :- 04 marks]

 6) \*\*\*Rotating square program—2D,3D, double buffering, timer program and concept

 3D object

 7) Logic operations[SA]

**PART II**:- 1) Geometric Objects[SA]

 2) 3 D primitives ( tetrahedron, prism, pyramid)

 3) \*\*Coordinate system---Homogeneous coordinates

 4) Frames in OpenGL[2M,3M,7M]

 5) Modeling a colored cube[LA]

 6) Bilinear Interpolation[SA]

 7) GLUT functions for 2D,3D [SA]

**UNIT III**

**PART I:-** 1) \*\*\*Affine transformation[SA]

2) Translation, rotation and scaling,Transformation in homogeneous coordinates[SA, LA, shear transformation[SA], write down the matrices etc]

3) Concatenation of transformation[LA]

4) Spinning of cube(CODE), Loading ,pushing and popping matrices

5) Classical and computer viewing [LA, differences between projections, viewing]

6) Positioning of camera[LA]

7) Difference between perspective and orthogonal projection

8) Simple and parallel projection difference or [LA]

9) \*\*\*Hidden surface Removal[LA]

10) How normalization used in projection or give parallel and perspective projection matrices[LA]

**UNIT IV**

**PART I:-** 1) Light sources[SA], definition,different types of light sources[SA]. define light,

 different types of surfaces:- specular, diffuse, translucent

 2) \*\*\*Phong Lighting Model[SA, LA]

 3) Normal Vectors[SA] , Angle of reflection[SA]

 4) Dot and cross product angle

 5) Polygonal shading[LA]

 6) Difference between aliasing and antialiasing

**PART II:-** 1) Four major tasks[LA]

 2)\*\*\* Line segment Clipping[LA]

 3) Difference between Cohen Sutherland and Liang Barsky clipping

 4) polygon clipping[LA]

 5) Clipping of other primitives, clipping in 3D

 6) Rasterixzation[SA]

 7)\*\*\* Bresenham’s line drawing algorithm, DDA algorithm [LA], difference between the two algorithms

 8) Comparitive study of polygon rasterization[LA]

 9) \*\*\*Hidden surface removal[LA]

 10) Antialising[SA]

 11) Gamma Correction[SA], Dithering and Halftonin[SA]

**UNIT V**

**PART I:-**  1) Trees and Traversal[LA]

 2) Use of Tree data structures

 3) Animation[SA]

 4) Scene Graphs[SA]

 5) Simple Scene Graph API[LA]

 6) Open Scene Graph[LA]

 7) Difference between Scene Graph and Open Scene Graph

 8) \*\*\*CSG Trees, BSP Trees,Quadtrees and Octrees [SA,LA]

**PART II:-** 1) Representation of curves and surfaces [SA]

 2) Interpolation [LA]

 3) Hermite Curves and Surfaces [LA]

 4) Bezier Curves and Surfaces [LA]

 5) Cubic B-Spline Curves[LA]

 6) General B-Spline Curves[LA]

 7) Difference between cubic and general B-Spline Curves[SA]

 8) Rendering Curves and Surfaces[LA]

 9) Curves and Surfaces in OpenGL[LA]

NOTE:- Prepare well with proper diagrams, include the glut functions wherever required. Prepare all the programs properly for semester paper.