

11. Program to construct LR (0) item set for the given grammar.
12. Program to implement Bottom-Up Parsing.

COMPUTER GRAPHICS AND VISUALIZATION LABORATORY

Lab Hours/ Week	: 2	Credits :	1.0
Sub. Code	: 6CSL04	CIE Marks :	50
		SEE Marks :	50

Design, develop and implement the following programs in C++ using OpenGL:

1. Write a program to demonstrate the following OpenGL primitives with either RGB or indexed colors(as suggested by examiner):
 - i) GL_POINTS ii)GL_LINES ii)GL_LINE_STRIP iii)GL_LINE_LOOP
 - iv)GL_TRIANGLES v)GL_TRIANGLE_STRIP vi)GL_TRIANGLE_FAN
 - vii)GL_QUADS viii) GL_QUAD_STRIP ix)GL_POLYGON
2. Write a program to demonstrate the two views, orthographic view and perspective view, of OpenGL by consider a 2D and a 3D with any two primitives.(Dimension is suggested by the examiner).
3. Write a program to design a scenery by using the following OpenGL built-in shapes.

glutSolidSphere(float radius, int slices, int stacks)	Circle	Sphere	Choose an integer 20-100 for the slices and stacks arguments; the higher the number, the more accurate the sphere/circle.
glutSolidCube(double size)	Square	Cube	
glutSolidCone(double base, double height, int slices, int stacks)	Triangle	Cone	The greater the slices argument is, the smoother the cone will appear.
glutSolidTorus(double innerRadius, double outerRadius, int nSides, int rings)		Torus	
glutSolidTeapot(float radius)			

4. Write a recursive program to construct a 3D Sierpinski gasket with polygons.

5. Write a program to demonstrate the plotting of implicit functions with marching squares technique.
6. Write a simple CAD program to model the polygons as follows:
 - i)Creating 2D polygons.
 - ii)Selection of a Polygon.
 - iii)Deletion of a polygon.
7. Write a program to demonstrate the OpenGL transformation functions with any of the suitable primitive for the following transformations:
 - i)Translate
 - ii)Scale
 - iii)Roate
8. Write an animated program to construct a car like structure on a track and perform the following in a menu:
 - i)start the car
 - ii)change dirction of moving car from left to right and vise versa.
 - iii) increase and decrease the speed
 - iv)stop the car.
 - v) a sub menu to change color of the car body.
9. Write a program to fill a 3D cube with a set of six colors for its six faces with the Z-buffer hidden surface removal algorithm. Allow the user to view all faces of the cube with rotation.
10. Write a program to fill the a star like structure with any one of the following algorithms:(Examiner's choice)
 - i) Flood fill
 - ii) Scan-Line fill

Note: Any one program shall be executed for 40 marks by a student. 10 marks are for viva voce.

The 40 marks are splitted as	
Write up(only for complete Solution)	10 marks
Conduction of Practicals	20 marks
Results	10 marks.