COMPUTER GRAPHICS

Q1. Create Empty Window

White Color (Screen)

```
#include<GL/glut.h>

void display() {
        glClear(GL_COLOR_BUFFER_BIT);
        glColor3f(1.0, 0.0, 0.0);
        glFlush();
}

void myinit() {
        glClearColor(1.0, 1.0, 1.0, 1.0);
        glColor3f(1.0, 0.0, 0.0);
        glPointSize(5.0);
        glMatrixMode(GL_PROJECTION);
        gluOrtho2D(0.0, 499.0, 0.0, 499.0);
}

void main(int argc, char** argv) {
        glutInit(&argc, argv);
        glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB);
        glutInitWindowSize(500, 500);
        glutInitWindowPosition(0, 0);
        glutCreateWindow("Blank Window");
        glutDisplayFunc(display);

        myinit();
        glutMainLoop();
}
```

Black Color (Screen)

```
#include<GL/glut.h>

void display() {
        glClear(GL_COLOR_BUFFER_BIT);
        glColor3f(1.0, 0.0, 0.0);
        glFlush();
}

void myinit() {
        glClearColor(0.0, 0.0, 0.0, 0.0);
        glColor3f(1.0, 0.0, 0.0);
        glPointSize(5.0);
```

```
        glMatrixMode(GL_PROJECTION);
        gluOrtho2D(0.0, 499.0, 0.0, 499.0);
}

void main(int argc, char** argv) {
        glutInit(&argc, argv);
        glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB);
        glutInitWindowSize(500, 500);
        glutInitWindowPosition(0, 0);
        glutCreateWindow("Blank Window");
        glutDisplayFunc(display);

        myinit();
        glutMainLoop();
}
```

Colored (Screen)

```
#include<GL/glut.h>

void display() {
        glClear(GL_COLOR_BUFFER_BIT);
        glColor3f(1.0, 0.0, 0.0);
        glFlush();
}

void myinit() {
        glClearColor(0.0, 1.0, 1.0, 0.0);
        glColor3f(1.0, 0.0, 0.0);
        glPointSize(5.0);
        glMatrixMode(GL_PROJECTION);
        gluOrtho2D(0.0, 499.0, 0.0, 499.0);
}

void main(int argc, char** argv) {
        glutInit(&argc, argv);
        glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB);
        glutInitWindowSize(500, 500);
        glutInitWindowPosition(0, 0);
        glutCreateWindow("Blank Window");
        glutDisplayFunc(display);

        myinit();
        glutMainLoop();
}
```

Q2. Draw a point of width 10 pixel

```c
#include<GL/glut.h>

void display() {
        glClear(GL_COLOR_BUFFER_BIT);
        glColor3f(1.0, 0.0, 1.0);

        glBegin(GL_POINTS);
        glVertex2f(150.0, 80.0);
        glEnd();
        glFlush();
}

void myinit() {
        glClearColor(1.0, 1.0, 1.0, 1.0);
        glColor3f(1.0, 0.0, 0.0);
        glPointSize(10.0);
        glMatrixMode(GL_PROJECTION);
        gluOrtho2D(0.0, 499.0, 0.0, 499.0);
}

void main(int argc, char** argv) {
        glutInit(&argc, argv);
        glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB);
        glutInitWindowSize(500, 500);
        glutInitWindowPosition(5, 5);
        glutCreateWindow("Points");
        glutDisplayFunc(display);

        myinit();
        glutMainLoop();
}
```

Q3. Draw a green color line from (10,10) to (50,50)

```c
#include<GL/glut.h>

void display() {
        glClear(GL_COLOR_BUFFER_BIT);
        glColor3f(0.0, 100.0, 0.0);

        glBegin(GL_LINES);
        glVertex2f(10.0, 10.0);
        glVertex2f(50.0, 50.0);
        glEnd();
        glFlush();
}
```

```
void myinit() {
        glClearColor(1.0, 1.0, 1.0, 1.0);
        glColor3f(1.0, 0.0, 0.0);
        glPointSize(10.0);
        glMatrixMode(GL_PROJECTION);
        gluOrtho2D(0.0, 499.0, 0.0, 499.0);
}

void main(int argc, char** argv) {
        glutInit(&argc, argv);
        glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB);
        glutInitWindowSize(500, 500);
        glutInitWindowPosition(5, 5);
        glutCreateWindow("Lines");
        glutDisplayFunc(display);

        myinit();
        glutMainLoop();
}
```

Q4. Draw a triangle on black background

```
#include<GL/glut.h>

void display() {
        glClear(GL_COLOR_BUFFER_BIT);
        glColor3f(0.0, 100.0, 0.0);

        glBegin(GL_LINES);
        glVertex2f(10.0, 10.0);
        glVertex2f(50.0, 50.0);
        glVertex2f(50.0, 50.0);
        glVertex2f(90.0, 10.0);
        glVertex2f(10.0, 10.0);
        glVertex2f(90.0, 10.0);
        glEnd();
        glFlush();
}

void myinit() {
        glClearColor(0.0, 0.0, 0.0, 0.0);
        glColor3f(1.0, 0.0, 0.0);
        glPointSize(10.0);
        glMatrixMode(GL_PROJECTION);
        gluOrtho2D(0.0, 499.0, 0.0, 499.0);
}
```

```
void main(int argc, char** argv) {
    glutInit(&argc, argv);
    glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB);
    glutInitWindowSize(500, 500);
    glutInitWindowPosition(5, 5);
    glutCreateWindow("Lines");
    glutDisplayFunc(display);

    myinit();
    glutMainLoop();
}
```

Q5. Draw a rectangle on black background

```
#include<GL/glut.h>

void display() {
    glClear(GL_COLOR_BUFFER_BIT);
    glColor3f(0.0, 100.0, 0.0);

    glBegin(GL_LINES);
    glVertex2f(10.0, 10.0);
    glVertex2f(50.0, 10.0);
    glVertex2f(50.0, 10.0);
    glVertex2f(50.0, 50.0);
    glVertex2f(50.0, 50.0);
    glVertex2f(10.0, 50.0);
    glVertex2f(10.0, 50.0);
    glVertex2f(10.0, 10.0);
    glEnd();
    glFlush();
}




void myinit() {
    glClearColor(1.0, 1.0, 0.0, 1.0);
    glColor3f(1.0, 0.0, 0.0);
    glPointSize(50.0);
    glMatrixMode(GL_PROJECTION);
    gluOrtho2D(0.0, 499.0, 0.0, 499.0);
}

void main(int argc, char** argv) {
    glutInit(&argc, argv);
    glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB);
    glutInitWindowSize(700, 700);
    glutInitWindowPosition(5, 5);
    glutCreateWindow("Points");
    glutDisplayFunc(display);

    myinit();
```

```
        glutMainLoop();
}
```