PRACTICAL -7

```cpp
#include <iostream>
#include <GL/glut.h>
#include <GL/freeglut.h>
#include <math.h>
using namespace std;
#define RADIAN (3.14/180)
#define XMAX 1400
#define YMAX 900
void Initialize();
void draw();
void draw_koch(float,float,float,float,int);
void Initialize()
{
glClear(GL_COLOR_BUFFER_BIT);
glClearColor(0.0,0.0,0.0,0.0);
glColor3f(1.0,1.0,1.0);
gluOrtho2D(0.0,XMAX,0.0,YMAX);
}
void draw(int n)
{
glBegin(GL_LINES);
draw_koch(600,100,800,400,n);
draw_koch(800,400,400,400,n);
draw_koch(400,400,600,100,n);
glEnd();
glFlush();
}
void draw_koch(float xa,float ya,float xb,float yb,int n)
{
float xc,xd,yc,yd,midx,midy;
xc = (2*xa+xb)/3;
yc = (2*ya+yb)/3;
xd = (2*xb+xa)/3;
yd = (2*yb+ya)/3;
midx = xc + ((xd-xc)*cos(60*RADIAN)) + ((yd-yc)*sin(60*RADIAN));
midy = yc - ((xd-xc)*sin(60*RADIAN)) + ((yd-yc)*cos(60*RADIAN));
if(n>0)
{
draw_koch(xa,ya,xc,yc,n-1);
draw_koch(xc,yc,midx,midy,n-1);
draw_koch(midx,midy,xd,yd,n-1);
draw_koch(xd,yd,xb,yb,n-1);
}
else
{
glVertex2f(xa,ya);
glVertex2f(xc,yc);
glVertex2f(xc,yc);
glVertex2f(midx,midy);
glVertex2f(midx,midy);
glVertex2f(xd,yd);
glVertex2f(xd,yd);
glVertex2f(xb,yb);
}
}
int main(int argc , char ** argv)
{
```

```
int n;
cout<<"\n Enter For How Many Iterations You Want to Draw ?::";
cin>>n;
glutInit( &argc , argv);
glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB);
glutInitWindowSize(XMAX,YMAX);
glutInitWindowPosition(0,0);
glutCreateWindow("Rameshwari Shirsath Roll No:70 ");
Initialize(); draw(n);
glutMainLoop();
return 0;
}
```

OUTPUT: