Name- Ratika

University Roll No - 1121109

Class Roll No - 28

Course - BCA Sem - 6th

Section- B

Paper Name- Computer Graphics and animation

Type of paper- Regular Endterm Practical

P3- Write an algorithm and program to implement Bresenham Circle Drawing Algorithm.

```
#include <graphics.h>
#include <stdlib.h>
#include <stdio.h>
#include <conio.h>
#include <math.h>

void Plot (int xc, int yc, int x, int y)
{
  putpixel (x+xc, y+yc, RED);
  putpixel (x+xc, -y+yc, YELLOW);
  putpixel (-x+xc, -y+yc, GREEN);
  putpixel (-x+xc, y+yc, YELLOW);
  putpixel (y+xc, x+yc, 12);
  putpixel (y+xc, -x+yc, 14);
  putpixel (-y+xc, -x+yc, 15);
  putpixel (-y+xc, x+yc, 6);
}
```

Rafiq

```
void BresenhamCircle(int xc, int yc, int r)
{
  int x=0, y=r, d=3-(2*r);
  Plot(xc, yc, x, y);
  while(x<=y)
  {
    if(d<=0)
    {
      d=d+(4*x)+6;
    }
    else
    {
      d=d+(4*x)-(4*y)+10;
      y=y-1;
    }
    x=x+1;
    Plot(xc, yc, x, y);
  }
}
int main(void)
{
  int xc, yc, r, gdriver=DETECT,
  gmode, errorcode;
```

Rathy

```
initgraph(&gdriver, &gmode, "C:\\TURBOC3
        \\BGI");
errorcode = graphresult();
if (errorcode != grOK)
{ printf("Graphics error: %s\n",
    grapherrormsg(errorcode));
  printf("Press any key to halt:");
  getch();
  exit(1);
}
printf("Enter the values of xc and
        yc:");
scanf("%d%d", &xc, &yc);
printf("Enter the Value of radius:");
scanf("%d", &r);
BresenhamCircle(xc, yc, r);
getch();
closegraph();
return 0;
}
```

RatiKg

Algorithm :-

step1 :- Start

step2 :- Declare p, q, x, y, r, d variables
p, q are coordinates of the center of the circle and r is the radius.

step3 :- Enter the value of r.

step4 :- Calculate d = 3 - 2r

step5 :- Initialize x = 0
& obs y = r

step6 :- Check if the whole circle is scan converted if x >= y
stop

step7 :- Plot eight points by using concepts of eight-way symmetry.
The centre is at (p, q). Current active pixel is (x, y).

Rathy

putpixel (x+p, y+q)
putpixel (y+p, x+q)
putpixel (-y+p, x+q)
putpixel (-x+p, y+q)
putpixel (-x+p, -y+q)
putpixel (-y+p, -x+q)
putpixel (y+p, -x+q)
putpixel (x+p, -y-q)

Step8: Finding location of next pixels to be scanned

if $d < 0$
then $d = d + 4x + 6$
increment $x = x + 1$
if $d \geq 0$
then $d = d + 4(x - y) + 10$
increment $x = x + 1$
decrement $y = y - 1$

Step9: Go to step 6

Step10: STOP

Rohit