Alg

Name : Sanskriti Bindal
Father Name : Sanjay kumar
University Roll NO : 1121127
Subject : Computer Graphics & Animation
2) Course : BCA
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3) Sec : B

P3- Write an algorithm and program to implement Bresenham circle drawing algorithm

Program

```
#include <stdio.h>
#include <graphics.h>
void main()
{ int gd=DETECT,gm;
  int r,x,y,p,xc=320,yc=240;
  printf("Enter the radius of circle");
  scanf("%d",&r);
  initgraph(&gd,&gm,"");
  x=0;
  y=r;
  putpixel(xc+x,yc-y,1);
  p=3-(2*r);
for(x=0;x<=y;x++)
{  if(p<0)
   {
     y=y;
     p=(p+(4*x)+6);
   }
  else
  { y=y-1;
    p= p+((4*(x-y)+10));
  }
putpixel(xc+x,yc-y,1);
putpixel(xc-x,yc-y,2);
```

```
putpixel(xc+x, yc+y, 3);
putpixel (xc-x, yc+y, 4);
putpixel (xc+y, yc-x, 5);
putpixel (xc-y, yc-x, 6);
putpixel (xc+y, yc+x, 7);
putpixel (xc-y, yc+x, 8);
3
getch();
closegraph();
3
```

Algorithm

Step 1: Assign starting point as

$x_0 = 0$

$y_0 = R$

Step 2: Calculate the value of initial decision parameter P_0

$P_0 = 3 - 2R$

Step 03: If

(i) Case $P_k < 0$

$x_{k+1} = x_k + 1$

$y_{k+1} = y_k$

$P_{k+1} = P_k + 4x(x_{k+1} + 6)$

(ii) Case $P_k > 0$

$x_{k+1} = x_k + 1$

$y_{k+1} = y_k - 1$

$P_{k+1} = P_k + 4x(x_{k+1} - y_{k+1}) + 10$

Step 04: If (x_0, y_0) is not $(0,0)$ then

$x_{plot} = x_c + x_0$

$y_{plot} = y_c + y_0$

Step 05: $x_{plot} \Rightarrow y_{plot}$

Finded

```
Enter radius of circle
70
```