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Subject: Computer Graphics
Subject Code: PBC-602
Course: BCA Sec 'C' Sem-VI

Ans) Source-code

```
#include <stdio.h>
#include <graphics.h>
int main()
{
int gd= DETECT, gm;
int r, x, y, p, xc=200, yc=200;
printf("Enter radius");
scanf("%d", &r);
initgraph(&gd, &gm, "");
x=0;
y=r;
p=1-r;
for(x=0; x<=y; x++)
{
if(p<0)
{
y=y;
p=p+(2*x)+1;
}
else
{
```

```
        y = y - 1;
        p = p + (2*x) - (2*y) + 1;
    }
putpixel(xc + x, yc + y, y);
putpixel(xc + y, yc + x, y);
putpixel(xc - x, yc + y, y);
putpixel(xc - y, yc + x, y);
putpixel(xc - x, yc - y, y);
putpixel(xc - y, yc - x, y);
putpixel(xc + x, yc - y, y);
putpixel(xc + y, yc - x, y);
}
delch();
closegraph();
return 0;
}.
```

Algo

~~The pixels to be~~

Starting coordinates = (x_0, y_0)

Ending coordinates = (x_n, y_n)

The point generation using Mid Point Line Drawing Algo involves the following steps.

Manisha

Step-01 : Calculate Δx and Δy from the given input. These parameters are calculated as :-

- $\Delta x = x_n - x_0$
- $\Delta y = y_n - y_0$

Step-02 : Calculate the value of initial decision parameter and ΔD.

These parameters are calculated as -

- $D_{initial} = 2\Delta y - \Delta x$
- $\Delta D = 2(\Delta y - \Delta x)$

Step-03 : The decision whether to increment x or y coordinate depends upon the following values of $D_{initial}$.

follow the below two cases -