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Course → BCA(B)

## Set B (Section B)

Q. (3) ans.

Program

```
#include <stdio.h>
#include <graphics.h>
void main()
{
    int gd = DETECT, gm;
    int r, x, y, p, xc = 320, yc = 240;
    printf("enter radius");
    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 = 1 + (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

```

### Algo:

Step 1: Assign starting point as;  $x_0 = 0, y_0 = R$

Step 2: Calculate value of initial decision parameter  $P_0$ .

$$P_0 = 3 - 2R$$

Step 3: Case,  $P_k < 0$ ,  $x_{k+1} = x_k + 1$   
 ~~$x_{k+1} = x_k + 1$~~   
 $y_{k+1} = y_k$   
 $P_{k+1} = P_k + 4x_{k+1} + 6$

Case,  $P_k > 0$

$x_{k+1} = x_k + 1$   
 $y_{k+1} = y_k - 1$   
 $P_{k+1} = P_k + 4(x_{k+1} - y_{k+1}) + 10$   
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Step 4: If  $(x_0, y_0)$  is not  $(0, 0)$  then

$$x_{plot} = x_c + x_0$$

$$y_{plot} = y_c + y_0$$

Step 5: Repeat  $x_{plot} \Rightarrow y_{plot}$

Sam

