Expt. No. .... Date..9/3/19..................

Page No. ....

Practical -3

Bresenham Mid-point circle Algorithm -

```
Procedure circle Midpoint (xcentre, ycentre, radius : int)
  var
      P, x, y : integer
      Procedure plotpoints;
        begin
           Setpixel (xcentre + x, ycentre + y, 1)
           Setpixel (xcentre - x, ycentre + y, 1)
           Setpixel (xcentre + x, ycentre - y, 1)
           Setpixel (xcentre - x, ycentre - y, 1)
           Setpixel (xcentre + y, ycentre + x, 1)
           Setpixel (xcentre - y, ycentre + x, 1)
           Setpixel (xcentre + y, ycentre - x, 1)
           Setpixel (xcentre - y, ycentre - x, 1)
        end;

      begin x : 0;
           y : = radius;
           plotpoints :
           P : = 1 - radius;
        while (x < y) do
           begin
              if P<0 then
                 x : x + 1;
           else
```

Teacher's Signature....................

Date.................

Expt. No. .... Page No. ....

```
          begin
              x := x+1 ;
              y := y+1 ;
          end
          if P<0 then
             P := P+2x+3
             else
             P := P+2*(x-y) +5
             plotpoints;
          end
  end;
```

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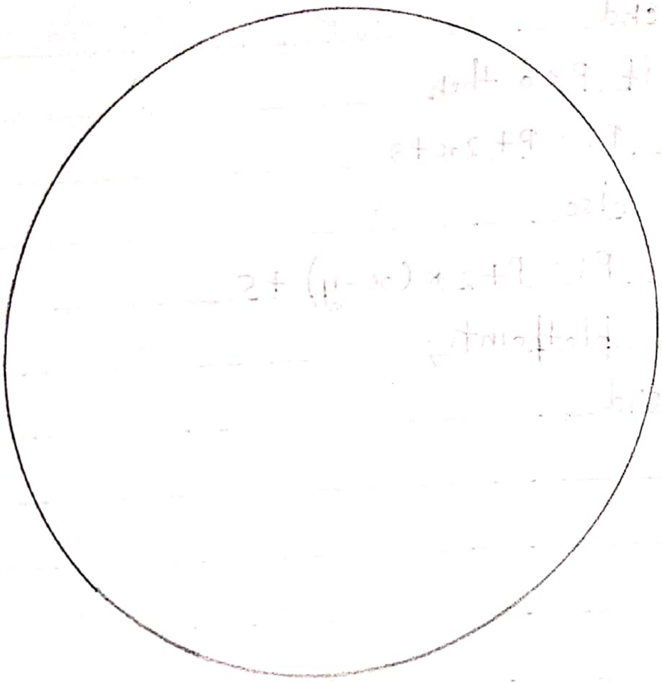
```
Enter the centre of x and y : 150 150
Enter the radius : 100
```



Objective - Program to implement Bresenham Mid-point circle Algorithm

```
#include <stdio.h>
# include < conio.h >
# include < graphics.h >
void midpoint (int xcentre, int ycentre, int radius)
{
    int p, x, y;
     x = 0;
     y = radius;
     p = 1- radius;
    do
   {
      if(p<0)
      {
         x = x+1;
         p = p+2* x+3;
      }
    else
    {
       x = x+1;
       y = y-1;
       p = p+2*x-2*y +5;
    }
```

```
            putpixel (xcentre + x, ycentre + y, 15);
            putpixel (xcentre - x, ycentre + y, 15);
            putpixel (xcentre + x, ycentre - y, 15);
            putpixel (xcentre - x, ycentre - y, 15);
            putpixel (xcentre + y, ycentre + x, 15);
            putpixel (xcentre - y, ycentre + x, 15);
            putpixel (xcentre + x, ycentre - x, 15);
            putpixel (xcentre - y, ycentre - x, 15);
        }   while (x<y);
    }

    int main()
    {
        int gd=DETECT, gm=0;
        int xcentre, ycentre, radius;
        printf ("Enter centre and radius");
        scanf ("%d%d%d", &xcentre, &ycentre, &radius);
        initgraph (&gd, &gm, "C:\\TURBOC3\\BGI");
        midpoint (xcentre, ycentre, radius);
        getch();
        closegraph();
    }
```

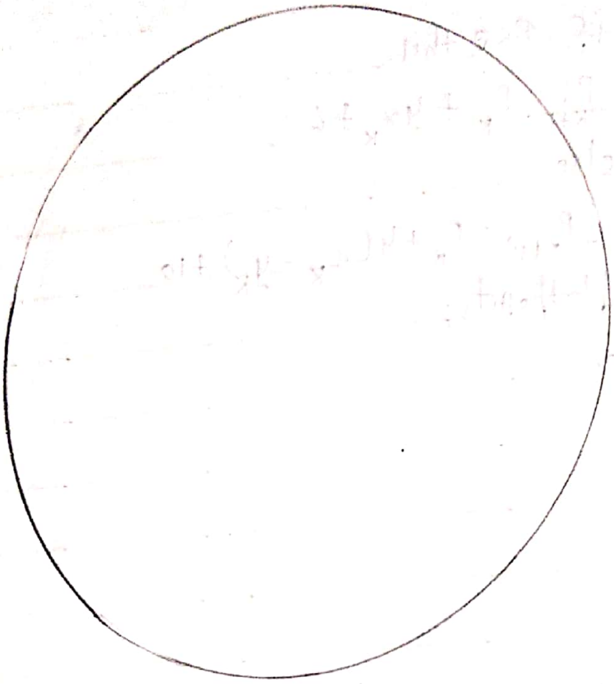
Practical - 4

Bresenham Circle Algorithm

```
Procedure circle Midpoint (xcentre, ycentre, radius : int)
 var
      P, x, y : integer
      Procedure plotpoints;
        begin
        Setpixel (xcentre+x, ycentre+y, 1).
        Setpixel (xcentre -x, ycentre +y, 1)
        Setpixel (xcentre +x, ycentre -y, 1)
        Setpixel (xcentre -x, ycentre -y, 1)
        Setpixel (xcentre+y, ycentre+x, 1)
        Setpixel (xcentre -y, ycentre+x, 1)
        Setpixel (xcentre+y, ycentre -x, 1)
        Setpixel (xcentre-y, ycentre -x, 1)
      end;
      begin x:0;
            y:= radius;
            plotpoints;
            $P_0$ := 3-2r;
       while (x<y) do
         begin
           if P<0 then
             x:x+1;
        else
```

```
            begin
                x := x+1;
                y := y+1;
            end
             if P<0 then
             $P_{k+1} := P_k + 4x_k + 6$
             else
               $P_{k+1} := P_k + 4(x_k - y_k) + 10$
             plotpoints;
         end
    end;
```

```
Enter the centre of x and y : 50 50
Enter the radius ; 100
```



Objective - Program to implement Bresenham Circle Algorithm

```
#include <stdio.h>
#include <graphics.h>
#include <conio.h>
void midpoint(int xcentre, int ycentre, int radius)
{
    int p, x, y;
    x=0;
    y=radius;
    p=3-2*radius;
    do
   {
     if(p<0)
     {
        x=x+1;
        p=p+4*x+6;
     }
   else
   {
       x=x+1;
       y=y-1;
       p=p+4*x-4*y+10;
   }
```

Date.......................................

Expt. No. .... Page No. ....

```
            putpixel (xcentre +x, ycentre +y, 15);
            putpixel (xcentre -x, ycentre +y, 15);
            putpixel (xcentre +x, ycentre -y, 15);
            putpixel (xcentre -x, ycentre -y, 15);
            putpixel (xcentre +y, ycentre +x, 15);
            putpixel (xcentre -y, ycentre +x, 15);
            putpixel (xcentre +y, ycentre -x, 15);
            putpixel (xcentre -y, ycentre -x, 15);
        } while (x<y);
    }
        int main ()
        {
            int gd= DETECT, gm=0;
            int xcentre, ycentre, radius;
            printf ("Enter centre and radius");
            scanf ("%d%d%d, &xcentre, &ycentre, &radius);
            initgraph (&gd, &gm, "C:\\TURBOC3\\BGI");
            midpoint (xcentre, ycentre, radius);
            getch();
            closegraph();
        }
```

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