LAB PROGRAMS

PROGRAM 1 /* DDA line generation*//

```
#include<stdio.h>
#include<graphics.h>
#include<math.h>
main()
{
float x,y,x1,y1,x2,y2,dx,dy,length;
int i,gd,gm;
clrscr();
printf("Enter the value of x1 :\t");
scanf("%f",&x1);
printf("Enter the value of y1 :\t");
scanf("%f",&y1);
printf("Enter the value of x2 :\t");
scanf("%f",&x2);
printf("Enter the value of y2 :\t");
scanf("%f",&y2);
detectgraph(&gd,&gm);
initgraph(&gd,&gm,"");
dx=abs(x2-x1);
dy=abs(y2-y1);

if (dx >= dy)
      {
      length = dx;
      }
      else
      {
      length = dy;
      }
dx = (x2-x1)/length;
dy = (y2-y1)/length;

x = x1 + 0.5;     /* Factor 0.5 is added to round the values */
y = y1 + 0.5;     /* Factor 0.5 is added to round the values */

i = 1;
```

```
while(i <= length)
     {
      putpixel(x,y,15);
      x = x + dx;
      y = y + dy;
      i = i + 1;
      delay(100);
      }
getch();
closegraph();

}
```

PROGRAM 2 /* Bresenham's line algorithm */

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

main()
{
float x,y,x1,y1,x2,y2,dx,dy,e;
int i,gd,gm;
clrscr();
printf("Enter the value of x1 :\t");
scanf("%f",&x1);
printf("Enter the value of y1 :\t");
scanf("%f",&y1);
printf("Enter the value of x2 :\t");
scanf("%f",&x2);
printf("Enter the value of y2 :\t");
scanf("%f",&y2);
detectgraph(&gd,&gm);
initgraph(&gd,&gm,"");
dx=abs(x2-x1);
dy=abs(y2-y1);
x = x1;
y = y1;
e = 2 * dy-dx;
i = 1;
do
{
putpixel(x,y,15);
while(e >= 0)
      {
        y = y + 1;
        e = e - 2 * dx;
      }
x = x + 1;
e = e + 2 * dy;
i = i + 1;
}
while( i <= dx);
getch();
closegraph();

}
```

PROGRAM 6 Circle generation (midpoint method)

```
#include<stdio.h>
#include<graphics.h>
#include<math.h>
main()
{
float   p;
int  i,gd,gm,x,y;
int  r;

/* initialise graphics
_____ */
detectgraph(&gd,&gm);
initgraph(&gd,&gm,"");

/* Read the radius
_____ */
printf("Enter the radius of the circle :");
scanf("%d",&r);

x=0;
y=r;
p = 1.25 - r;
do
{
      putpixel(200+x,200+y,15);
      putpixel(200+y,200+x,15);
      putpixel(200+x,200-y,15);
      putpixel(200+y,200-x,15);
      putpixel(200-x,200-y,15);
      putpixel(200-x,200+y,15);
      putpixel(200-y,200+x,15);
      putpixel(200-y,200-x,15);

      if  (p  <  0)
      {
      x  =  x+1;
      y  =  y;
      p  =  p  +  2*x  +  2;
      }
      else
      {
      x=  x+1;
```

```
        y = y-1;
        p = p + 2*(x-y) + 1;
        }
        delay(100);
        }
        while(x < y);
getch();
closegraph();

}
```