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Course: BCA

Sec: C

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Subject: Computer Graphics practical

Ans 1) Brasenham's line algorithm

```
#include <stdio.h>
#include <graphics.h>
int main()
{
int gd=DETECT, gm, x0, y0, x1, y1, dx, dy, p, x, y;
printf("Co-ordinates of first point:");
printf("\n Enter the value of x1 :");
scanf("%d", &x0);
printf("Enter the value of y1 :");
scanf("%d", &y0);
printf("Co-ordinates of second point :");
printf("\n Enter the value of x2:");
scanf("%d", &x1);
printf("Enter the value of y2:");
scanf("%d", &y1);
initgraph(&gd, &gm, "");
```

Kartik

```
dx = x1-x0;
dy = y1-y0;
x=x0;
y=y0;
p= 2*dy-dx;
while (x<x1)
  {
   if (p>=0)
    {
     putpixel(x, y, 4);
     y=y+1;
     p=p+2*dy - 2*dx;
     }
   else
    {
     putpixel(x,y,4);
      p=p+2*dy;
    }
  x=x+1;
 }
 getch();
 return 0;
}.
```

Kanika

Algorithm: [Bresenham's Line Algorithm]

Step 1: Start

Step 2: Declare variable $x_1, x_2, y_1, y_2, d, i_1, i_2, dx, dy$.

Step 3: Enter value of x_1, y_1, x_2, y_2

where x_1, y_1 are coordinates of starting point and x_2, y_2 are coordinates of Ending point.

Step 4: Calculate $dx = x_2 - x_1$

Calculate $dy = y_2 - y_1$

Calculate $i_1 = 2 * dy$

Calculate $i_2 = 2 * (dy - dx)$

Calculate $d = i_1 - dx$.

Step 5: Consider (x, y) as starting point and x_{end} as maximum possible value of x

If $dx < 0$

Then $x = x_2$

$y = y_2$

$x_{end} = x_1$

If $dx > 0$

Then $x = x_1$

$y = y_1$

$x_{end} = x_2$

Kavita