Rn-56

END TERM PRACTICAL EXAMINATION

Name	Vishal Singh
Father's Name	Girdhar Singh
University Roll no	1121171
Course	BCA
Semester	6
Paper Name	CBNST
Paper Code	PBC-603
Type of Paper	Regular
Date	16/06/2021

①

```
#include <stdio.h>
#include <graphics.h>
int main ()
{
 int rou (float nom)
 {
  return num<0 ? nom - 0.5 : num +0.5;
 }
 int x1= 100, x2 = 300, y1 = 100, y2 = 200;
 int gd= DETECT, gm;
 float pk, PKK, x,y, step;
 int dx = x2 - x1;
 int dy = y2-y1;
 pK = 2*dx-dy;
 if (dx>dy)
 step=dx;
 else
 step=dy;
 initgraph(&gd, &gm, "");
 outtextxy (x1, y1, "A");
 outtextxy (x2, y2, "B");
 putpixel (x1, y1, WHITE);
```

Vishal

```
x = x1, y = y1;
while (step>0)
 {
   if (pk<0)
   {
    pkk = pk+2*dy;
   }
   else
   {
     pkk = pk +2*dy - 2*dx;
    y++;
    }
    putpixel (rou(x), rou(y) ,WHITE);
    x++;
   step--;
   }
   getch();
   return 0;
  }
```

Vishal

Bresen ham's Algo

Step1: Start

Step 2 Declare x, y, x1, y1, x2, y2, dx, dy, steps, p in float data type

Step 3 Declare gm and initialize gd = Detect & i=1.

Step 4 Enter coordinates x1 & y1 of first point

Step 5 Enter coordinates x2 & y2 of second point

Step 6. Initialize graph by using initgraph (&gd, &gm, " ").

Step7 Calculate, dx = x2 - x1 &
dy = y2 - y1
steps = dx - 1

Step 8 Initialize decision parameter
PK = (2* dy) - dx

Step 9 Initialize p=PK, x = x1, y = y1

Step 10 Repeat step 11 to 13 while i<=steps

Vishal

```
Step11  Check if p<0, then
            putpixel (x, y, WHITE)
            x= x+1
            y=y;
            p= p+(2*dy);

Step12  putpivel (n, y; WHITE)
            n= n+1
            y=y+1
            p=p+(2* dy)-(2 * dn);
```

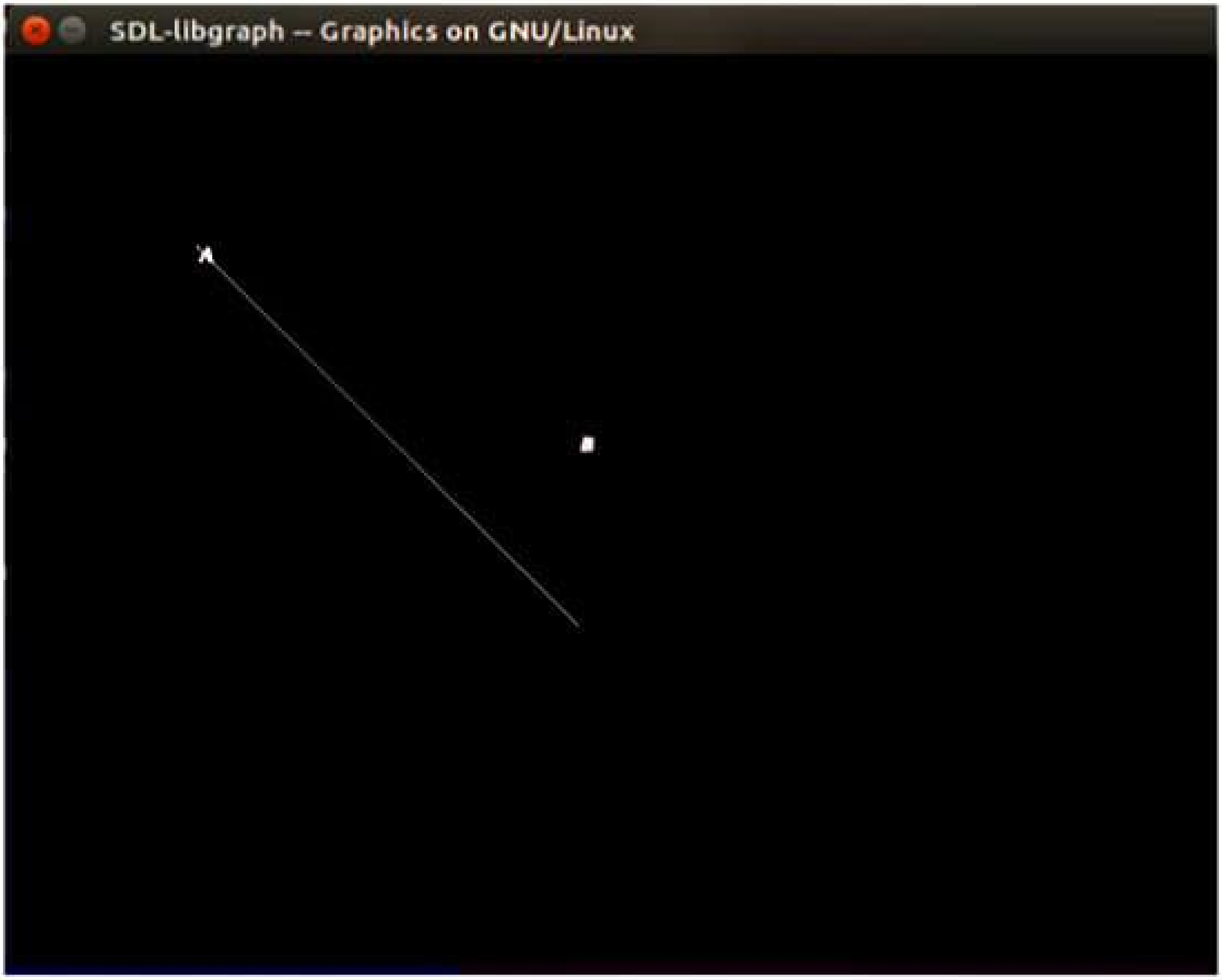
Step13 Increment i by one.

Step14 Close the graph

Step15 ~~close~~ Stop

Vishal

OUTPUT



②

Page①

```
#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)
      {
        p=p+(2*x)+1;
      }
     else
      {
        y=y-1;
        p=p+(2*x)-(2*y)+1;
      }
```

Vishal

```
putpixel (xc + x, yc+y, 7);
putpixel (xc +y, yc+x, 7);
putpixel (xc-x, yc+y,7);
putpixel (xc-y, yc-y,7);
putpixel (xc-y yc-x, 7);
putpixel (xc+x yc-y,7);
 }
 getch();
 Closegraph();
 return 0;
 }
```

Algorithm:

Step1: Start

Step2: Plot center coordinates (p_0, q_0) follows: $p_0=0, q_0=r$.

step3: Now calculate the init decision parameter $d_0 = 1-r$;

Step4: Assume the starting coordinates (p_k, q_k)

The next coordinate will be (p_{k+1}, q_{k+1})

Find the next point of first octant according to dk.

Step5 Follows these 2 cases-

Case1: If $d_k < 0$, then

$p_{k+1} = p_k + 1$

$q_{k+1} = q_k$

$d_{k+1} = d_k + 2p_{k+1} + 1$

Case2: If $d_x >= 0$, then

$p_{k+1} = p_k + 1$

$q_{k+1} = q_k - 1$

$d_{k+1} = d_k - 2(q_{k+1} + 2p_{k+1} + 1)$

Step6: If center not (0,0) points will be

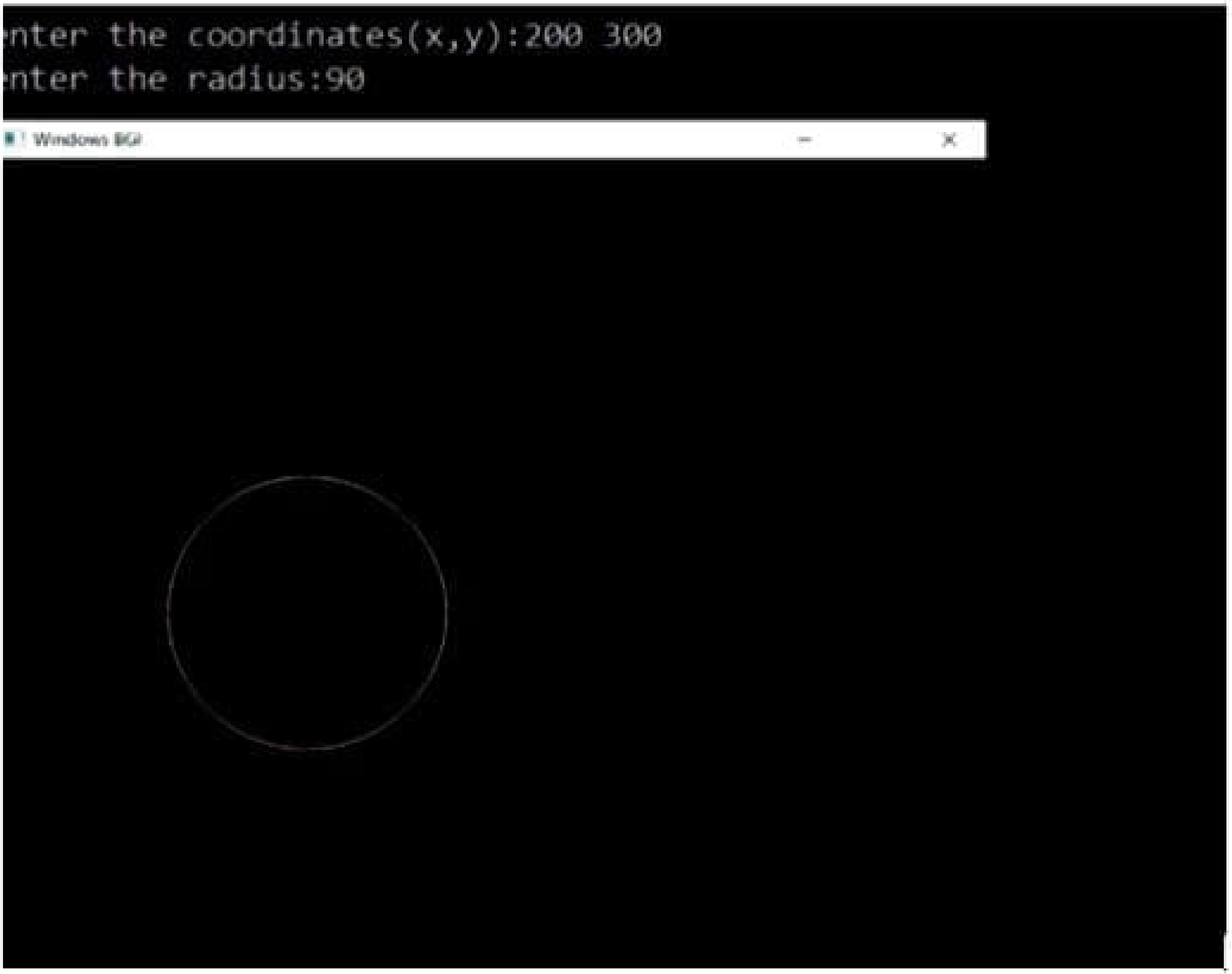
xcoordinate = $x_c + p_0$ ycoordinate = $y_c + q_0$

Step7: Repeat step 5 & 6 until $x >= y$

Step 8: Stop

Vishal

OUTPUT:



```
nter the coordinates(x,y):200 300
nter the radius:90
```