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Course: BCA

Sec: C

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Subject: Computer Graphics practical

Ans 2) Midpoint Circle Algorithm.

Algorithm: Step 1: Put $x=0, y=r$ in equation 2

we have $p=1-r$

Step 2: Repeat steps while $x \leq y$

Plot (x, y)

If $(p<0)$

then set $p = p+2x+3$

else

$p = p+2(x-y)+5$

$y = y-1$ (end if)

$x = x+1$ (end loop)

Step 3: End.

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Program

```
#include <graphics.h>
#include <stdlib.h>
#include <math.h>
#include <stdio.h>
#include <conio.h>
#include <iostream.h>

class bresen
{
    float x,y,a,b,r,p;
    public:
    void get();
    void col();
};
```

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```
void main()
{
  brosen b;
  ~~bi get~~
  b.get();
  b.cal();
  getch();
}
void brosen::get()
{
cout<<"Enter the centre and Radius";
cout<<"Enter(a,b)";
cin>>a>>b;
  cout<<"Enter radius";
  cin>>r;
}
void brosen::cal()
int gdriver=DETECT,gmode,errorcode;
  int midx,midy,i;
  initgraph(&gdriver,&gmode," ");
  errorcode=graphresult();
 if(errorcode!=grOK)
  {
  printf("Graphics error:%s\n",Grapherrormsg(errorcod
 printf("Press any key to halt:");
   getch();
   exit(1);
}
```

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```
x=0;
y=r;
putpixel(a, b+r, RED);
putpixel(a, b-r, RED);
putpixel(a+r, b, RED);
putpixel(a-r, b, RED);
p=5/4)-r;
while (x<=y)
{
if (p<0)
p+=(4*x)+6;
else
{
p+=(2*(x-y))+5;
y--;
}
x++;
putpixel(a+x, b+y, RED);
putpixel(a-x, b+y, RED);
putpixel(a+x, b-y, RED);
putpixel(a-x, b-y, RED);
putpixel(a+x, b+y, RED);
putpixel(a+x, b-y, RED);
putpixel(a-x, b+y, RED);
putpixel(a-x, b-y, RED);
}
}
```

Kavita