END TERM PRACTICAL EXAMINATIONS.

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SET-B

Q1) Flood fill algorithm with 8 connected Approach

```
#include<stdio.h>
#include<graphics.h>
#include<dos.h>
void floodfill(int a, int b, int x, int y)
{
  int current;
  current = getpixel(a, b);
  if(current==x)
  {
    delay(5);
    putpixel(a, b, y);
    floodfill(a+1, b, x, y);
    floodfill(a-1, b, x, y);
    floodfill(a, b+1, x, y);
    floodfill(a+1, b+1, x, y);
    floodfill(a-1, b+1, x, y);
    floodfill(a+1, b-1, x, y);
    floodfill(a-1, b-1, x, y);
  }
}
void main()
{
  int gd=DETECT, gm;
  initgraph(&gd, &gm, "");
  rectangle(50, 50, 150, 150);
```

Kuldeep

```
floodfill (70, 70, 0, 15);
getch();
closegraph();
}
```

Кивиуа.

Algorithm

Step 01 :- Start.

Step 02 :- Initialize the value of seed point (centre) (a, b), fill color = x and old color = y.

Step 03 :- Define the boundary values of the polygon.

Step 04 :- Check if the current centre point is of default color then repeat step 05 and step 06 till the boundary pixel is reached.

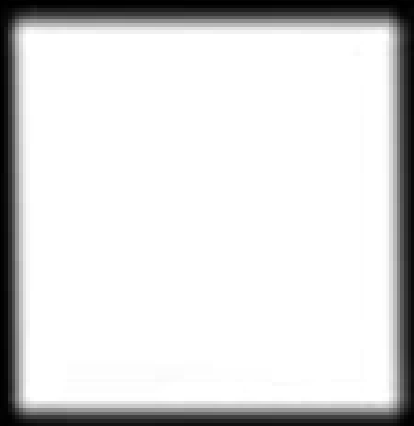
Step 05 :- Change the default color with the fill color (x) at the centre (a, b).

Step 06 :- Recursively follow the procedure with four neighbourhood points —

```
floodfill (a+1, b, x, y)
floodfill (a-1, b, x, y)
floodfill (a, b+1, x, y).
floodfill (a+1, b+1, x, y)
floodfill (a-1, b+1, x, y)
floodfill (a+1, b-1, x, y)
floodfill (a-1, b-1, x, y).
```

Step 07 :- Stop.

Kukreja.



SET-B:

Q3 Bresenham's Circle Drawing algorithm.

```
#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=3-(2*r);
for(x=0; x<=y; x++)
{
   if(p<0)
   {
      y=y;
      p=p+(4*x)+6;
   }
   else
   {
      y=y-1;
      p=p+(4*x)-(4*y)+10;
      x=x+1;
   }
```

Kavya

```
putpixel(xc+x, yc+y, 1);
putpixel(xc+y, yc+x, 2);
putpixel(xc-x, yc+y, 3);
putpixel(xc-y, yc+x, 4);
putpixel(xc-x, yc-y, 5);
putpixel(xc-y, yc-x, 6);
putpixel(xc+x, yc-y, 7);
putpixel(xc+y, yc-x, 8);
}
getch();
closegraph();
return 0;
}.
```

Кивиуа

Algorithm

Step01 :- Start

Step02 :- Declare r, x, y, p, xc, yc variables.

→ xc and yc are the coordinates of the center of the circle.

→ r is the radius.

Step03 :- Enter the value of r.

Step04 :- calculate p=3-(2*r);

Step05 :- Initialize x=0 and y=r;

Step06 :- check if the whole circle is scan converted.

If x>=y

stop.

Step07 :- Plot eight points by using concepts of eight-way symmetry. The centre is (xc, yc). Current active pixel is (x, y).

putpixel (xc+x, yc+y, 1)
putpixel (xc+y, yc+x, 2)
putpixel (xc-x, yc+y, 3)
putpixel (xc-y, yc+x, 4)
putpixel (xc-x, yc-y, 5)
putpixel (xc-y, yc-x, 6)
putpixel (xc+x, yc-y, 7)
putpixel (xc+y, yc-x, 8).

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step08 :- find location of next pixels to be scanned

if $p<0$.

then $p = p + 4x + 6$.

no increment in y.

if $p>=0$.

then $p = p + 4x - (4-y) + 10$.

decrement $y = y - 1$.

increment $x = x + 1$.

step09 :- Go to step 6.

step10 :- Stop.

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