

A) PARALLEL PROJECTION

PROGRAM :

```
#include<stdio.h>
#include<stdlib.h>
#include<graphics.h>
#include<conio.h>
void draw3d(int s,int x[20],int y[20],int d);
void main()
{
    clrscr();
    int gd=DETECT,gm;
    int x[20],y[20],i,s,d;
    initgraph(&gd,&gm,"C:/TC/BGI");
    printf("Enter the No of sides : ");
    scanf("%d",&s);
    for(i=0;i< s;i++)
    {
        printf("(x%d,y%d) :",i,i);
        scanf("%d%d",&x[i],&y[i]);
    }
    printf("Depth :");
    scanf("%d",&d);
    draw3d(s,x,y,d);
    getch();
    setcolor(14);
    for(i=0;i< s-1;i++)
    {
        line(x[i]+200,y[i],x[i+1]+200,y[i+1]);
    }
    line(x[i]+200,y[i],x[0]+200,y[0]);

    getch();//top view
    for(i=0;i< s-1;i++)
    {
        line(x[i],300,x[i+1],300);
        line(x[i],300+d*2,x[i+1],300+d*2);
        line(x[i],300,x[i],300+d*2);
        line(x[i+1],300,x[i+1],300+d*2);
    }
    getch();//side view
    for(i=0;i< s-1;i++)
    {
        line(10,y[i],10,y[i+1]);
        line(10+d*2,y[i],10+d*2,y[i+1]);
        line(10,y[i],10+d*2,y[i]);
        line(10,y[i+1],10+d*2,y[i+1]);
    }
    getch();
    closegraph();
}
void draw3d(int s,int x[20],int y[20],int d)
```

```

{
    int i,j,k=0;
    for(j=0;j< 2;j++)
    {
        for(i=0;i< s-1;i++)
            line(x[i]+k,y[i]-k,x[i+1]+k,y[i+1]-k);
        line(x[i]+k,y[i]-k,x[0]+k,y[0]-k);
        k=d;
    }
    for(i=0;i< s;i++)
        line(x[i],y[i],x[i]+d,y[i]-d);
}

```

OUTPUT :

Enter the No of sides : 4

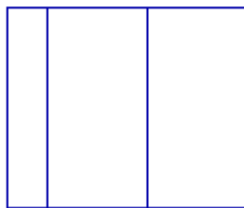
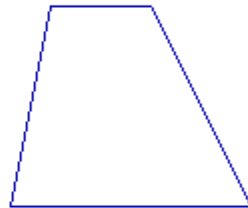
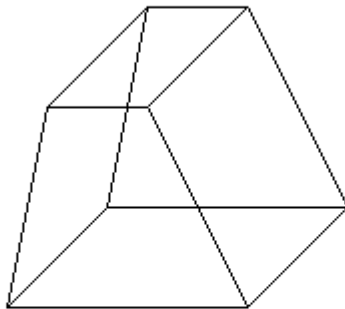
(x0,y0) :200 150

(x1,y1) :250 150

(x2,y2) :300 250

(x3,y3) :180 250

Depth :50



B) PERSPECTIVE PROJECTION

PROGRAM :

```
#include<stdio.h>
#include<math.h>
#include<graphics.h>
#include<conio.h>
void main()
{
int x1,y1,x2,y2,gd,gm;
int ymax,a[4][8];
float par[4][4],b[4][8];
int i,j,k,m,n,p,d=0,h=25;
int xp,yp,zp,x,y,z;
a[0][0] = 100; a[1][0] = 100; a[2][0] = -100;
a[0][1] = 200; a[1][1] = 100; a[2][1] = -100;
a[0][2] = 200; a[1][2] = 200; a[2][2] = -100;
a[0][3] = 100; a[1][3] = 200; a[2][3] = -100;
a[0][4] = 100; a[1][4] = 100; a[2][4] = -200;
a[0][5] = 200; a[1][5] = 100; a[2][5] = -200;
a[0][6] = 200; a[1][6] = 200; a[2][6] = -200;
a[0][7] = 100; a[1][7] = 200; a[2][7] = -200;
detectgraph(&gd,&gm);
initgraph(&gd,&gm,"C:/TURBOC3/BGI");
ymax=getmaxy();
xp=300; yp=320; zp=100;
for(i=0;i<2;i++)
{
line(50+d,225-d,100+d,225-d);
line(100+d,225-d,100+d,275-d);
line(100+d,275-d,50+d,275-d);
line(50+d,275-d,50+d,225-d);
d=h;
}
line(50,225,50+d,225-d);
line(100,225,100+d,225-d);
line(100,275,100+d,275-d);
line(50,275,50+d,275-d);
for(j=0;j<8;j++)
{
x=a[0][j]; y=a[1][j]; z=a[2][j];
b[0][j]=xp-((float)(x-xp)/(z-zp))*(zp);
b[1][j]=yp-((float)(y-yp)/(z-zp))*(zp);
}
//front plane display
for(j=0;j<3;j++)
{
x1=(int)b[0][j]; y1=(int)b[1][j];
x2=(int)b[0][j+1]; y2=(int)b[1][j+1];
line(x1,ymax-y1,x2,ymax-y2);
}
x1=(int)b[0][3]; y1=(int)b[1][3];
x2=(int)b[0][0]; y2=(int)b[1][0];
```

```

line(x1,ymax-y1,x2,ymax-y2);
//back plane display
for(j=4;j<7;j++)
{
x1=(int)b[0][j]; y1=(int)b[1][j];
x2=(int)b[0][j+1]; y2=(int)b[1][j+1];
line(x1,ymax-y1,x2,ymax-y2);
}
x1=(int)b[0][7]; y1=(int)b[1][7];
x2=(int)b[0][4]; y2=(int)b[1][4];
line(x1,ymax-y1,x2,ymax-y2);
for(i=0;i<4;i++)
{
x1=(int)b[0][i]; y1=(int)b[1][i];
x2=(int)b[0][4+i]; y2=(int)b[1][4+i];
line(x1,ymax-y1,x2,ymax-y2);
}
getch();
closegraph();
}

```

OUTPUT :

