

1) Drive a Stepper Motor interface to rotate the motor in Anti-clockwise by N steps. Introduce suitable delay between successive steps.

```
#include<stdio.h>
#include<reg51.h>
char xdata port_at_0xe803;
char xdata porta_at_0xe800;
charidata acc_at_0x30;
charidata acc_at_0x30;
delay();
int j;
for(j=0; j<800; j++) {
}
void main() {
    port = 0x80;
    while(1) {
        acc = 0x11;
        porta = acc;
        delay();
        acc = 0x88;
        porta = acc;
        delay();
    }
}
```

MC

Display messages FIRE & HELP alternately with flickering effects on a 7-segment display interface for a suitable period of time. Ensure a flashing rate that makes it easy to read both the messages.

A.

```
#include <stdio.h>
#include <meg51.h>
char xdata CommW_at_0xc803;
char xdata portB_at_0xe801;
char xdata portC_at_0xe802;
char portT[20] = { 0x8c, 0xf9, 0xde, 0x86, 0xff, 0xff, 0xff,
    0xff, 0x89, 0x86, 0xc7, 0x8c }, i;
delay();
long u;
for(u=0; u<8000; u++);
```

}

```
void main() {
    int d, b, j, m;
    unsigned char k;
    CommW = 0xc80;
    do {
        i = 0;
        for(d = 0; d < 3; d++)
            for(b = 0; b < 4; b++)
                k = portT[i++];
        for(j = 0; j < 8; j++)
            m = k;
        k = k & 0x80;
    }
    if(k == 0)
        portB = 0x00;
    else
```

h&B = 0x01;

{ h&C = 0x01;

h&C = 0x00;

k=m;

k<<=1;

} }

delay();

} }

while(1);

{

Q) Display messages BANGALORE in scrolling fashion on a 7-segment display interface for a suitable period of time.

```
#include <stdio.h>
#include <reg51.h>
char xdata CommW_at_0xc803;
char xdata portB_at_0xc801;
char xdata portC_at_0xc802;
char port[20] = {0xff, 0xff, 0xff, 0xff, 0x83, 0x88, 0xc8, 0x82,
                 0xc7, 0xc0, 0xAF, 0x86}, i;
delay()
{
    long u;
    for(u=0; u<4000; u++);
}
void main()
{
    int d, b, f, m;
    unsigned char k;
    CommW=0x80;
    do
    {
        i=0;
        for(d=0; d<1; d++)
        {
            for(b=0; b>0; b--)
            {
                delay();
                k=port[i++];
                for(j=0; j<2; j++)
                {
                    m=k;
                    k=k&0xc80;
                }
                if(k==0)
                    portB=0x00;
                else
                    portB=0x01;
            }
        }
    }
}
```

heatC = 0x01;

heatC = 0x00;

k = m;

.

k <<= 1;

{

}

delay();

{

}

while(1);

{

4) Drive a Stepper Motor interface to rotate the motor in clockwise by N steps. Introduce suitable delay between successive steps.

A. WAVE DRIVE :-

```
#include <reg52.h>
#include <stdio.h>

void delay(int);
void main()
{
    do
    {
        P2 = 0x01;
        delay(1000);
        P2 = 0x02;
        delay(1000);
        P2 = 0x04;
        delay(1000);
        P2 = 0x08;
        delay(1000);
    }
    while(1);
}

void delay(int k)
{
    int i, j;
    for(i=0; i<k; i++)
    {
        for(j=0; j<100; j++)
    }
}
```

FULL DRIVE:

```
#include <reg52.h>
#include <stdio.h>
void delay(int);
void main()
{
    P2 = 0x03;
    delay(1000);
    P2 = 0x06;
    delay(1000);
    P2 = 0x09; P2 = 0x0c;
    delay(1000);
    P2 = 0x09;
    delay(1000);
}
```

```
white(1);
```

```
void delay(int k)
{
    int i, j;
    for(i=0; i<k; i++)
    {
        for(j=0; j<100; j++)
    }
}
```

HALF DRIVE :-

```
#include <reg52.h>
#include <stdio.h>
void delay(int);
void main()
{
    do
    {
        P2 = 0x01;
        delay(1000);
        P2 = 0x03;
        delay(1000);
        P2 = 0x02;
        delay(1000);
        P2 = 0x06;
        delay(1000);
        P2 = 0x04;
        delay(1000);
        P2 = 0x0C;
        delay(1000);
        P2 = 0x08;
        delay(1000);
        P2 = 0x09;
        delay(1000);
    }
    while(1);
}

void delay(int k)
{
    int j, i;
    for(i=0; i<k; i++)
    {
        for(j=0; j<100; j++)
    }
}
```

57. Program to done the elevator interface.

```
A. #include <stdio.h>
#include <gicv51.h>
unsigned char xdata CommandWord_at_0xe803;
unsigned char xdata PortA_at_0xe800;
unsigned char xdata PortB_at_0xe801;
unsigned char xdata PresentFloor, RequestedFloor, Step = 0xef0;
unsigned long xdata Count, i;
Delay();
for (Count = 0; Count <= 4500; Count++);
{
    Reset();
    Step = Step & 0x0f;
    PortA = Step;
    Step = Step | 0xf0;
    PortA = Step;
}
GIOVPC();
Switch(RequestedFloor) {
    case 0x0d: while (Step < 0xf3) {
        Step++;
        PortA = Step;
        Delay();
    }
    Reset();
    break;
}
case 0x0b: while (Step < 0xf6) {
    Step++;
    PortA = Step;
    Delay();
}
Reset();
```

```
break;  
case 0x07: while(CStep < 0xf9){  
    Step++;  
    PortA = Step;  
    Delay();  
}  
Reset();  
break;  
}  
GoDown();
```

```
Switch(RequestedFloor);  
case 0x0d: while(CStep > 0xf3){  
    Step--;  
    PortA = Step;  
    Delay();  
}  
Reset();  
break;  
case 0x0b: while(CStep > 0xfc){  
    Step--;  
    PortA = Step;  
    Delay();  
}  
Reset();  
break;
```

```
case 0x0c: while(CStep > 0xf0){  
    Step--;  
    PortA = Step;  
    Delay();  
}  
Reset();  
break;  
}}
```

```
void main() {
    CommandWord = 0x8d;
    PortA = 0xf0;
    PresentFloor = 0xe;
    while(1) {
        RequestedFloor = PortB;
        RequestedFloor = RequestedFloor & 0x0f;
        if(RequestedFloor != 0x0f && RequestedFloor != PresentFloor) {
            if(RequestedFloor < PresentFloor)
                GoUp();
            else
                GoDown();
            PresentFloor = RequestedFloor;
        }
        RequestedFloor = PortB;
    }
}
```