8051 Microcontroller Programs

1.) Drive a stepper motor interface to rotate th motor in Anti-clockwise by N stepts. Introd suitable delay between successive steps.

```
#include<stdio.h>
#include <reg51.h>
char xdata port_at_ 0xe803;
char xdata porta _at_ 0xe800;
charidataacc _at_ 0x30;
delay()
 { int j;
   for(j=0; j<800; j++)
    { }
 }

void main()
{ port = 0x80;
  while(1)
   { ~~port~~ acc = 0x11;
      porta = acc;
      delay();
      acc = 0x22;
      porta = acc;
      delay ();
      acc = 0x33;
      parta = acc;
       delay();
      acc = 0x44;
      porta = acc;
      delay();
   }
}
```

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(2.) Drive a stepper motor interface to rotate the motor in 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;
char idata acc _at_ 0x30;
 delay()
  { int j;
     for(j=0; j<8000; j++)
      {}
  }

void main()
 {
   port = 0x80;
   while(1)
    {
      acc = 0x88;
      porta= acc;
      delay();
      acc = 0x44;
      porta = acc;
      delay();
      acc = 0x22;
      porta = acc;
      delay();
      acc = 0x11;
      porta= acc;
      delay();
    }
 }
```

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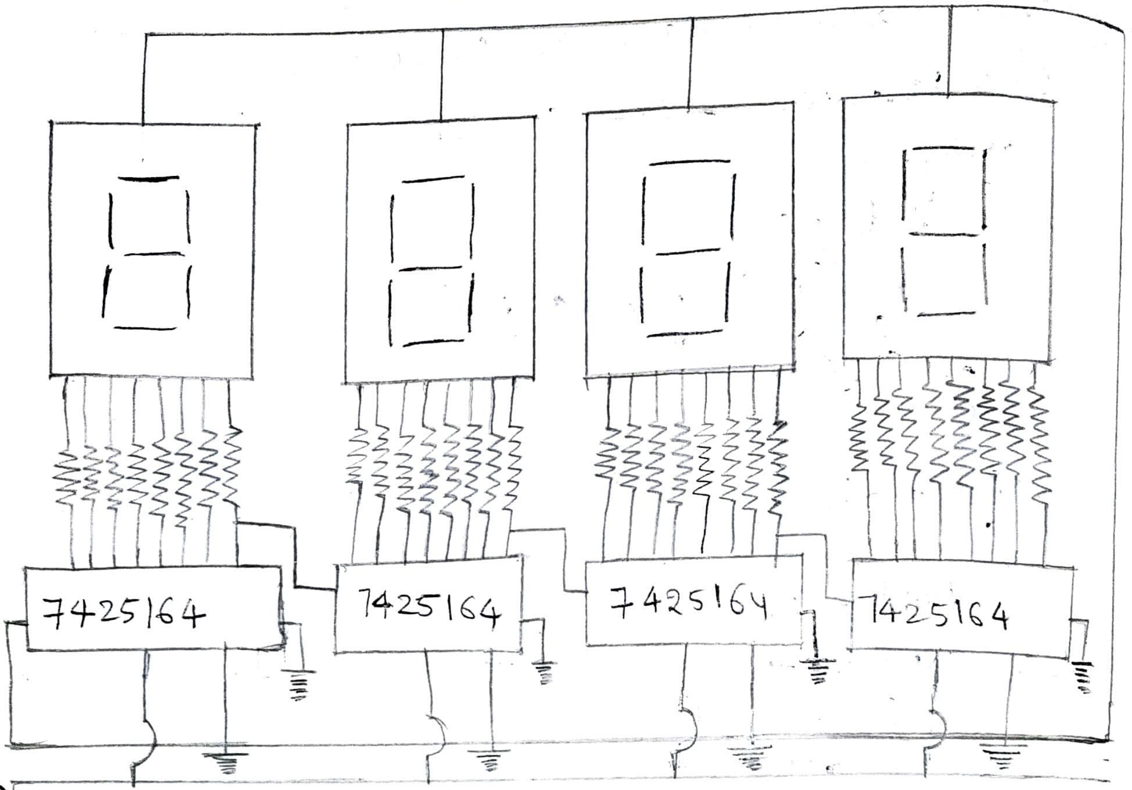
③ Display messages FIRE and HELP alternately with flickering effects on a 7-segment display interface for a suitable period of time. Ensure a flashing rate that makes it easy to read both the messages.



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```
#include<stdio.h>
#include<reg51.h>
char xdata CommW _at_ 0xe803;
char xdata portB _at_ 0xe801;
char xdata portC _at_ 0xe802;
char port[20]={0x8e,0xf9,0xde,0x86,0xff,0xff,
        0xff,0xff,0x89,0x86,0xc7,0x8c},i;
delay()
{ long u;
    for(u=0;u<8000;u++)
}
```

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```
void main()
{ int d, b, j, m;
  unsigned char k;
  CommW = 0x80;
  do
  { i=0;
    for(d=0; d<3; d++)
    { for(b=0; b<4; b++)
      { k= port [i++];
        for (j=0;j<8;j++)
        { m=k;
          k = k& 0x80;
          { if(k==0)
            PortB =0x00;
            else
              portB = 0x01;
          }
          port C = 0x01;
          port C = 0x00;
          k = m;
          k <<= 1;
        }
      }
    delay();
    }
  }
  while(1);
}
```

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(4.) Display messages BANGALORE in rolling fashion on a 7-segment display interface for a suitable period of time.

```
#include<stdio.h>
#include<reg51.h>
char xdata commw _at_ 0x803;
char xdata portB _at_ 0x801;
char xdata portC _at_ 0x802;
char port[20]={0xff,0xff,0xff,0xff,0x83,0x88,
        0xC8,0x82,0x88,0xC7,0xC0,0xAF,0x86},i;
   delay()
   { long u;
     for(u=0; u<4000; u++);
   }

   void main()
   {
     int d, b, j, m;
     unsigned char k;
     commw = 0x80;
     do
     {  i=0;
        for(d=0;d<1;d++)
        {
          for(b=13; b>0; b--)
          { delay();
            k= port[i++];
          for(j=0; j<8 ;j++)
          {
            m=k;
            k= k&0x80;
```

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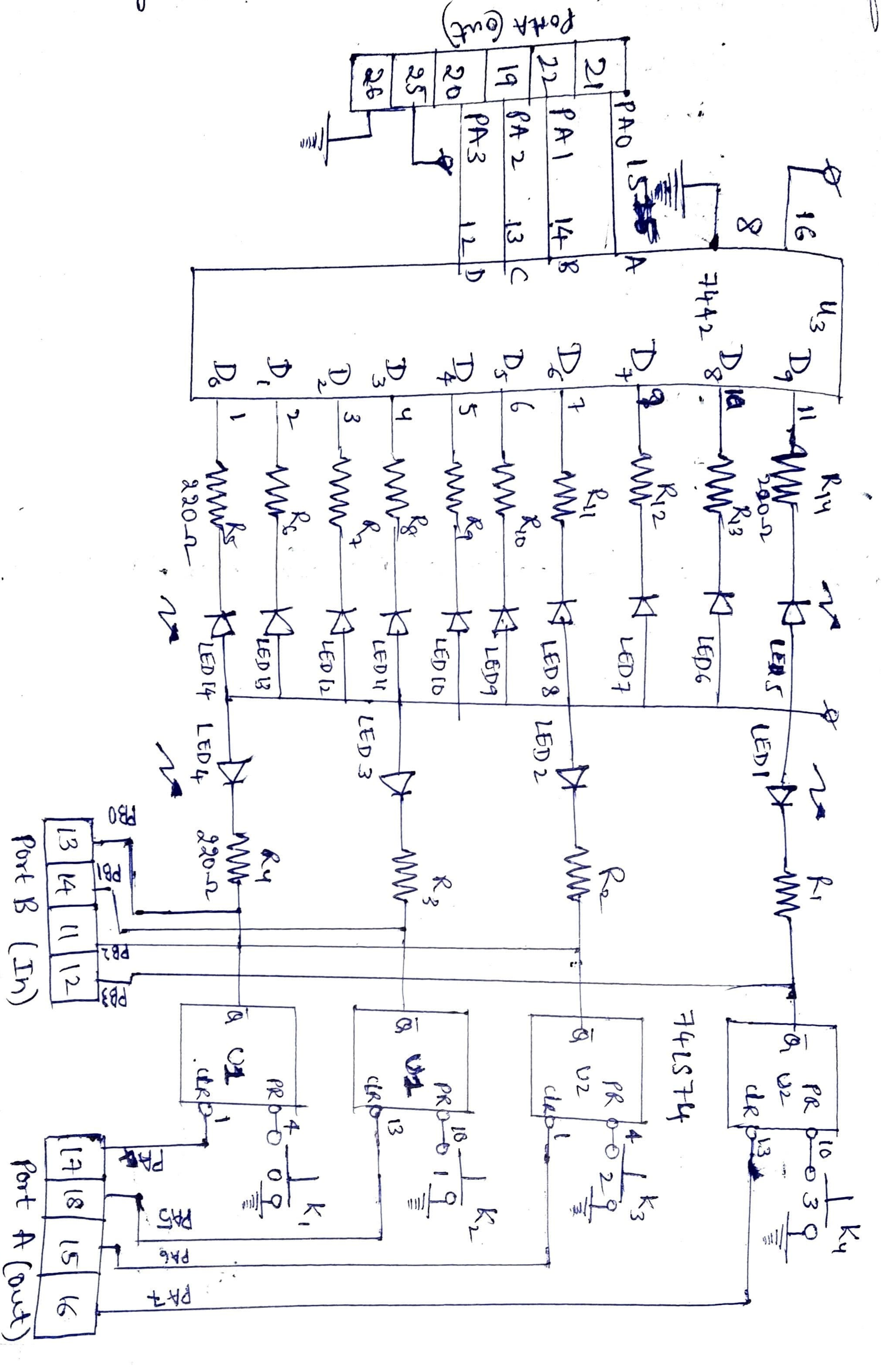
```
{ if(k==00)
      portB=0x00;
    else
      portB = 0x01;
  }
  portC = 0x01;
  portC = 0x00;
   k=m;
    k<<=1;
   }
   }
   delay();
   }
   }while(1);
   }
```

(5) Program to demonstrate the elevator interfa



```
#include <stdio.h>
#include<reg51.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 = 0xf0;
unsigned long xdata count, i;
delay()
{ for(count=0; coun<=4500; Count++)
}

reset ()
{   Step = step& 0x0f;
    portA= step;
     step = Step | 0xf0;
     port A= step;
 }
Goup()
{ Switch(RequestedFloor)
    { case 0x0d: while(step< 0xf3)
              {  step++;
                 PortA = step;
                 delay();
              }
              reset();
              break;
```

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```
case 0x0b : while (Step< 0xf6)
            { step++;
              portA = Step;
              delay();
            }
            reset();
            break;
case 0x07 : while (Step< 0xf9)
            { step++;
              portA = Step;
              delay();
            }
            reset();
            break;
      }
   }
GoDown()
{ switch (RequestedFloor)
   { case 0x0d : while(step>0xf3)
                 { step --;
                   portA = Step;
                   delay();
                 }
                 reset();
                 break;
     case 0x0b : while (Step > 0xf3)
                 { Step --;
                   portA = Step;
                   delay();
                 }
                 reset();
                 break;
```

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```
case 0x0e : while (step > 0xf0)
              { step--;
                portA = step;
                delay();
              }
              reset();
              break;
    }.
  }

void main ()
{ commandWord = 0x82;
  PortA = 0xf0;
  PresentFloor= 0x0e;
  while(1)
  { Requestedfloor = PortB;
    Requestedfloor = Requestedfloor & 0x0f;
   if (Requestedfloor != 0x0f && Requestedfloor
          != Presentfloor)
   { if(RequestedFloor < PresentFloor)
         GoUp();
     else
         GoDown();
     PresentFloor = RequestedFloor;
   } }
     Requestedfloor= PortB;
  }
```

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