

Name = Jehangir Ahmad

(1)

ID = 11646

Q 1 :-

(a)

Ans :- Microprocessors :-

- The operations performed if require storage devices it will be interfaced externally in the circuits.
- The design of the microprocessor is not dedicated to a specific task. It is used during the complex circuits computations.
- The applications that require high memory utilizes the circuit of the microprocessor.
- The processors are used whenever lots of processing is required.

An integrated circuit that performs the functions as the central processing unit in which the inputs and the outputs are not defined is known as a microprocessor.

Name = Jehangir Ahmad

(2)

ID = 11646

Microcontroller :-

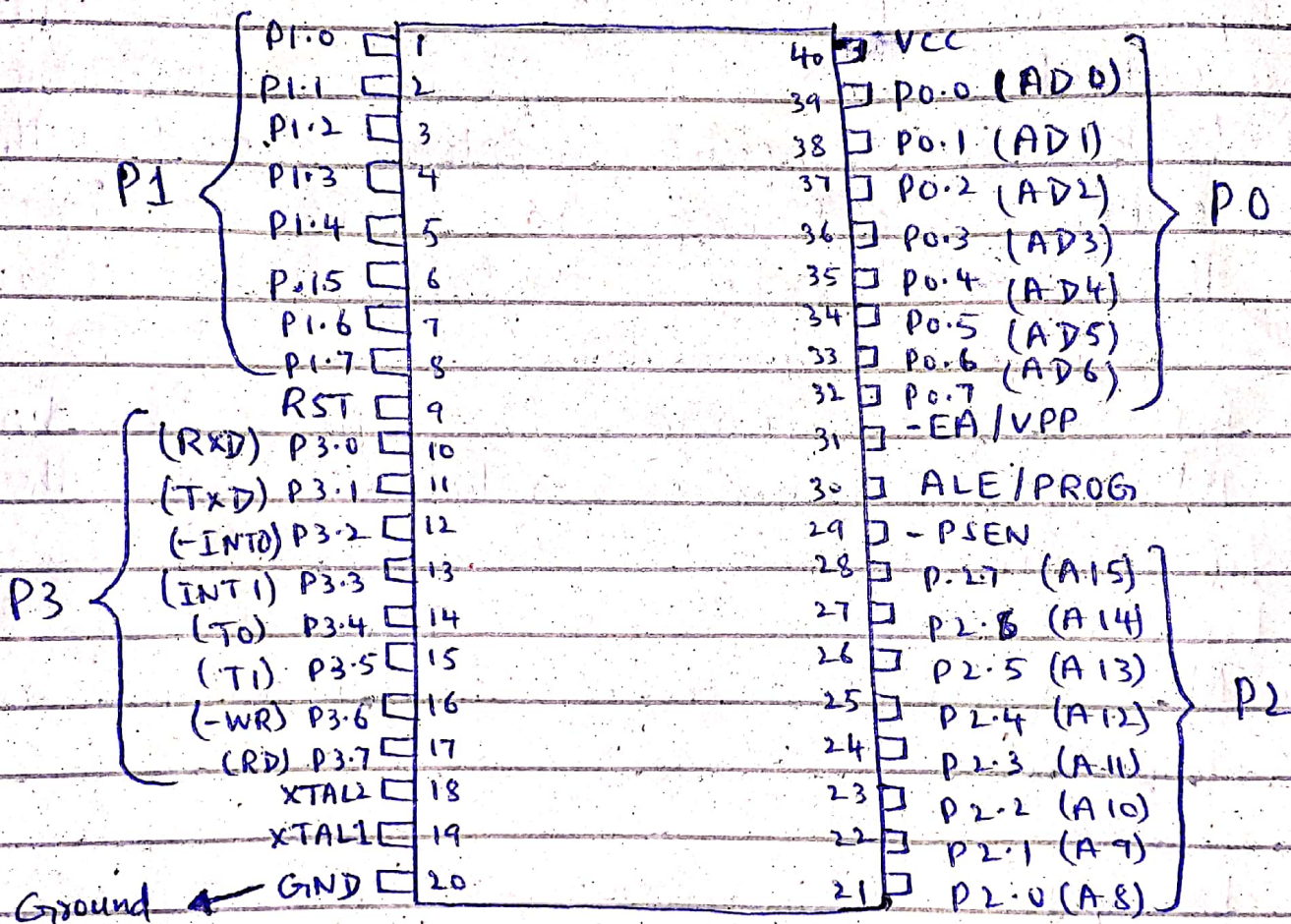
A microcontroller is a minicomputer present on a single IC. It consists of a processor, ROM, RAM and the input output pins to perform various tasks. The inputs applied and the output obtained is defined by the user to perform the tasks.

- On-chip storage is present for storing information related to the program.
- No external circuit interfacing are required.
- Examples of micro-controllers are 8051, PIC, AVR etc.
- Microcontrollers are used in real time system like ABS, EBS, Robots and in most of our electronic devices.

3

(b)

Ans:- 8051 pin diagram:-



A Total of 32 pins are set aside for the four ports P0, P1, P2, P3, where each port takes 8 pins.

VCC:-

Provides +5V supply voltage to the chip

(4)

(c)

Ans:- It is a slightly more powerful microcontroller, sporting a number of additional features which the developer may make use of:

- 256 bytes of internal RAM (compared to 128 in the standard 8051).
- A third 16-bit timer, capable of number of new operation modes and 16-bit reloads.
- Additional SFRs to support the functionality offered by the third timer.

(d)

Ans:-

Dual role of Port 2 - Besides working as I/O.

Port 2 :- P2 is also used to provide 16-bit address bus of external memory along with Port 0. Port P2 is also designated as (A8-A15), while Port 0 provides the lower 8-bits via A0-A7.

(5)

(e)

```
#include <reg 51.h>
```

```
void T1 Delay;
```

```
void main (void)
```

```
{
```

```
    while 1
```

```
    {
```

```
        P1 = 0x55;
```

```
        T1 Delay ();
```

```
        P1 = 0xAA
```

```
        T1 = Delay ();
```

```
    }
```

```
}
```

```
void T1 Delay () {
```

```
    TMOD = 0x01;
```

```
    TL1 = 0x00;
```

```
    TH1 = 0x35;
```

```
    TR1 = 1;
```

```
    while (TF0 == 0);
```

```
    TR1 = 0;
```

```
    TF1 = 0;
```

```
}
```

6

(f)

```
#include <reg51.h>
sbit Led = P0^0;
void timer Delay ()
{
    TH0 = 0x4B;
    TLO = 0xFD;
    TR0 = 1;
    while (TF0 == 0);
    TF0 = 0;
    TR0 = 0;
}
void main
{
    TMOD = 0x01;
    while (1)
    {
        LED = 1;
        timer Delay ();
        LED = 0;
        timer Delay ();
    }
}
```

(7)

Q4

(a) What will the following code do?

```
#include <reg.51.h>
sbit sw 1 = P0^0; (Function to send and write)
sbit led 1 = P0^2; (Return Home)
unsigned int i = 0; (Decrement cursor)
void delay (unsigned char x) // Function to time
{
    delay
    unsigned int i, j; // Function to provide send
    for (i = 0; i <= x; ++i) // command to LCD
    for (j = 0; j <= 1275; j++); (Display off, cursor
    off)
}
void main () (Function is we enter our program.
{
    code)
    while (1) (while loop so that our program runs
    forever)
    {
        if (sw == 1 && led 1 == 1) (Display on, cursor
        blinking)
        {
            led 2 = 0; (Display off, cursor on)
            delay (100); // Function to provide time
            led 2 = 1; (Display on) delay in msec
        }
        if (sw == 1 && led 1 == 0) (Display on, cursor
        off)
        {
            led 2 = 1; (Display on)
            delay (100); (time delay)
            led 2 = 0; (Display off)
        }
    }
}
```

8

(b) Find errors

```
#include <reg 51.h>
sbit sw1 = P0^0;
void delay (unsigned char x)
{
    unsigned int y, z;
    for (y=0; y<=2; y++)
        for (z=0; z<=1275; z++)
            ;
}
void main ()
{
    while (1)
    {
        if (sw1 == 1 && led1 == 1)
            P2 = 0 y++;
        Delay_ms (100);
    }
}
```


9

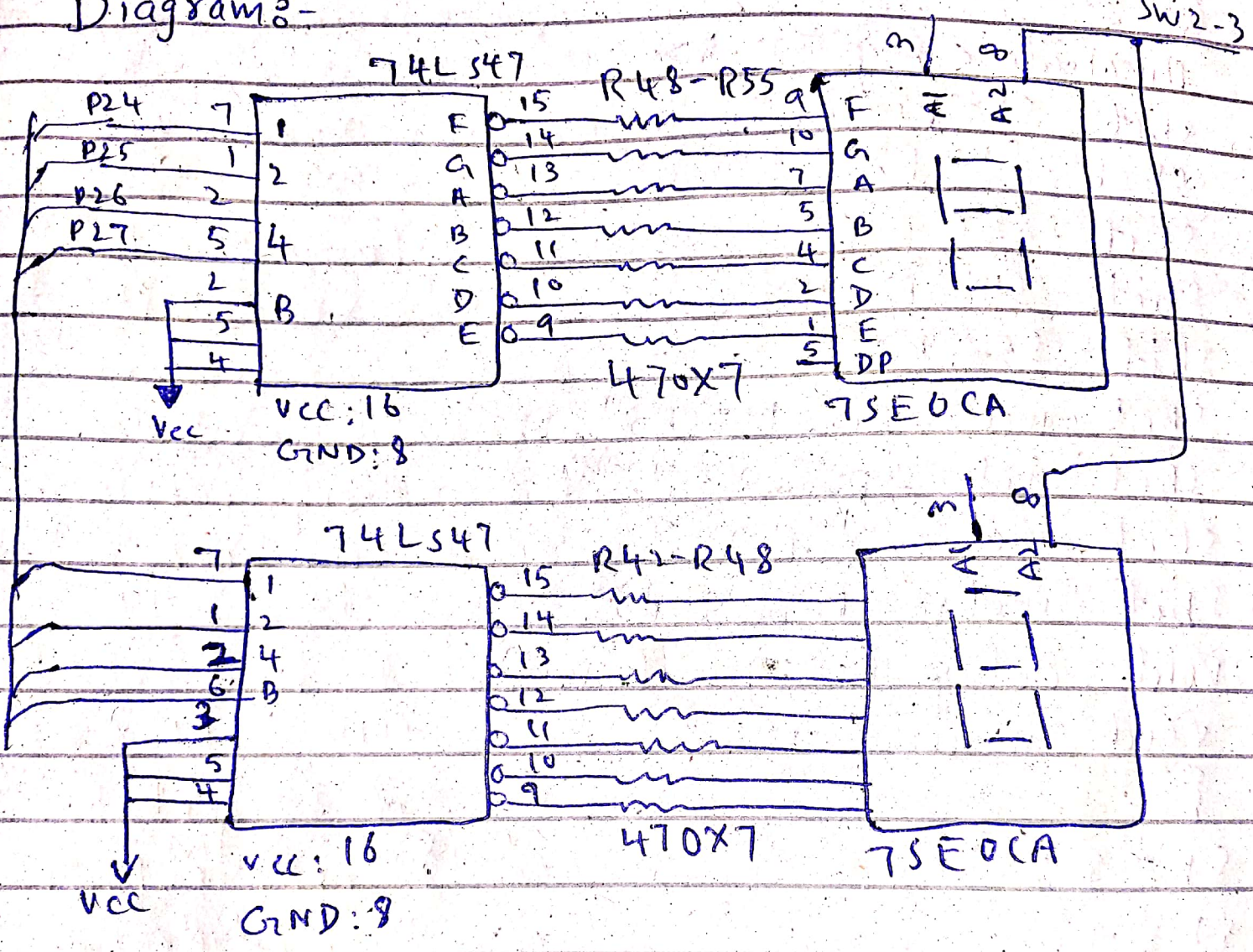
Q 2 :-

```
Ans:- #include <reg 51.h>
sbit = P3^1; = (switch 1)
sbit = P3^2; = (switch 2)
sbit = P3^0; = (switch 3)
void delay (int x)
{
  For (i=0; i<x; i++)
  for (j=0; j<1275; j++)
  void main ()
  {
    while (1)
    {
      if (switch 2 == 1)
      {
        led 2 = 1
      }
      if (switch 3 == 1)
      {
        led 0 = 1
      }
    }
  }

```

~~switch~~

Diagram 2-



Q 30-

```

#include <reg 52.h>
sbit S1 = P2^1;
sbit S2 = P2^2;
sbit S3 = P2^3;
sbit S4 = P2^4;
sbit S5 = P2^5;
sbit motor-pin-1 = P3^0;
sbit motor-pin-2 = P3^1;
sbit motor-pin-3 = P3^2;
sbit motor-pin-4 = P3^3;
void delay (unsigned int);
void main ()
{
    S1 = 1;
    S2 = 1;
    S3 = 1;
    S4 = 1;
    S5 = 1;
    P3 = 0x00;
    {
        if (S1 == 0)
        {
            delay (10);
            P3 = 0x05;
            motor-pin-1 = 0;
            motor-pin-2 = 1;
            motor-pin-3 = 0;
        }
    }
}

```

```
motor-pin-4 = 1;  
}
```

```
else if (s2 == 0)  
{
```

```
  delay (10);
```

```
  I.P3 = 0x0a;
```

```
  motor-pin-1 = 1;
```

```
  motor-pin-2 = 0;
```

```
  motor-pin-3 = 1;
```

```
  motor-pin-4 = 0;
```

```
}
```

```
else if (s3 == 0)  
{
```

```
  delay (5);
```

```
  motor-pin-1 = 0;
```

```
  motor-pin-2 = 0;
```

```
  motor-pin-3 = 0;
```

```
  motor-pin-4 = 0;
```

```
  if (s4 == 0)
```

```
  {
```

```
    delay (5);
```

```
    motor-pin-1 = 1;
```

```
    motor-pin-2 = 0;
```

```
    motor-pin-3 = 0;
```

```
    motor-pin-4 = 0;
```

```
  }
```

```
  if (s5 == 0)
```

```
  {
```

```
delay (5);  
motor-pin-1 = 0;  
motor-pin-2 = 0;  
motor-pin-3 = 1;  
motor-pin-4 = 0;  
}  
}  
}
```

void delay (unsigned int z) //delay function

```
unsigned i, j;  
for (i=0; i<2; i++)  
for (j=0; j<1275; j++);  
}
```

Diagram :-

