

NAME

FAWAD AHMAD

ID

14231

SUBJECT

MICROCONTROLLER

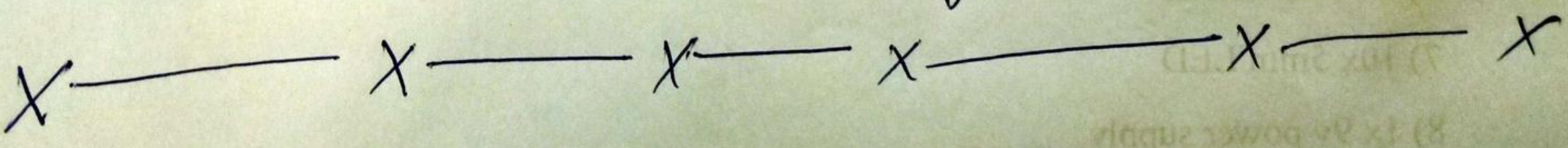
Q1(a):- Explain the difference between microprocessors and micro controller?

ANS:- DIFFERENCE BETWEEN MICROPROCESSOR AND MICROCONTROLLER

\* Microprocessor consist of only a central processing unit, whereas a Micro Controller contains a CPU, Memory, I/O all integrated into one chip.

\* Microprocessor uses an external bus interface to RAM, ROM, and other peripherals, on the other hand, Microcontroller uses an internal controlling bus.

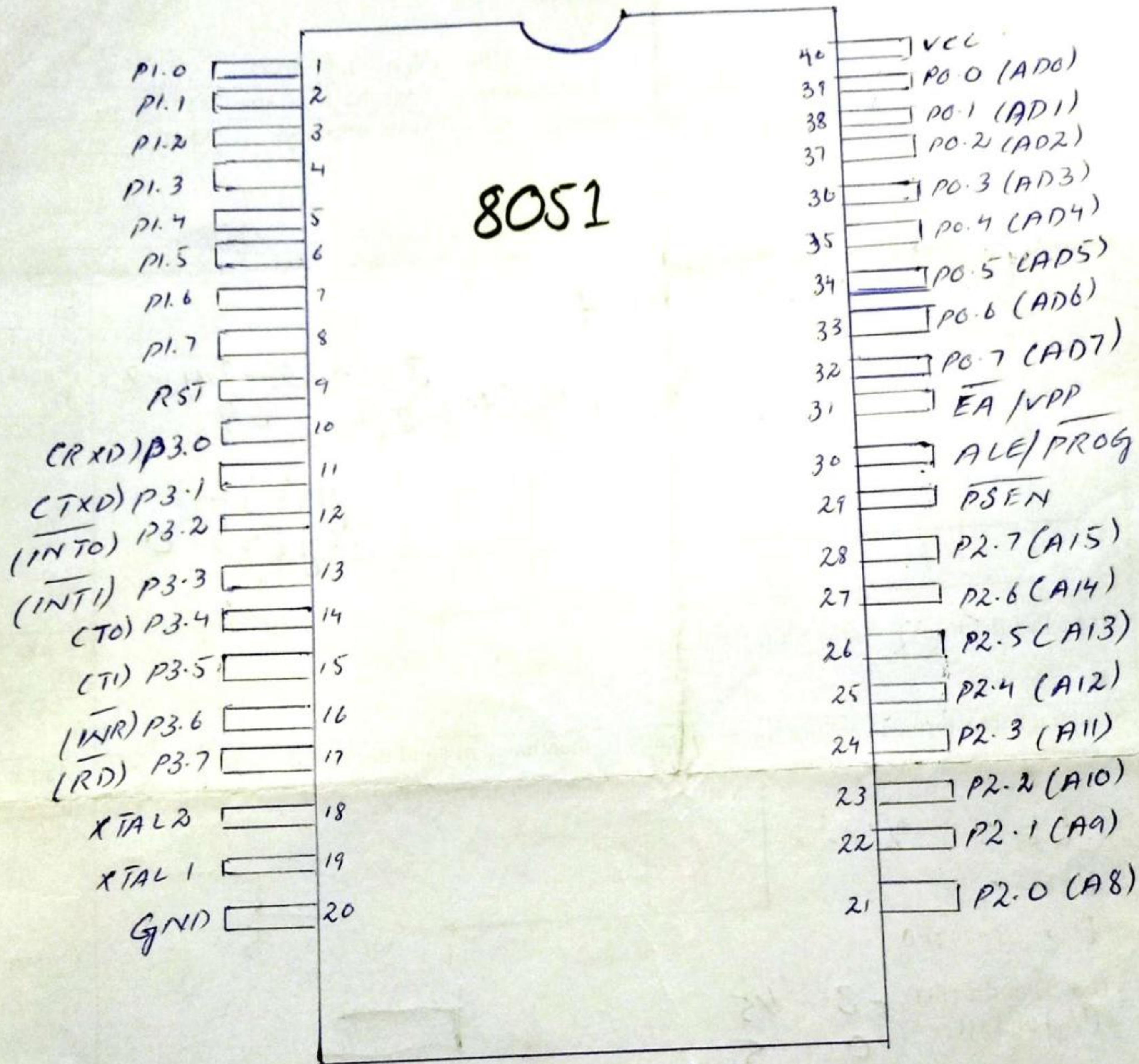
\* Microprocessor is used in personal computers, whereas Micro Controller is used in an embedded system.



$T_{RO} = 1;$

(2)

(b) Draw the pin diagram of the Intel 8051 microcontroller.



- \* P1 to 8: These pins are known as port 1.
- \* P9. It is REST pin.
- \* Pin 10 to 17. These pins are known as port 3.
- \* Pin 18 to 19. These pins are used for interfacing and external crystal to get the system clock.
- \* Pin 20. This pin provides the power supply to the circuit.

\* Pins 21 to 28. These pins are known as port 2. (3)

\* pin 29. This is PSEN pin which stands for program Store enable.

\* pin 30. This is EA pin which stands for External Access input.

\* pin 31. This is ALE pin

\* pin 32 to 39. These pins are known as Port 0.

\* pin 40. This pin is used to provide power supply to the circuit.

... Linda Greg 51...  
c) How many hardware timers are present in 8052? (4)

ANS:- There are three timers in 8052.

X ——— X ——— X ——— X ——— X ——— X

d) Explain the dual role of port 0, port 2, port 3.

ANS:- \* Port 0 is also designated as A0-A7 as it can be used for both data and address handling. The 8051 microcontroller then multiplexes the input as address or data in order to save pins.

\* Port 2 is also designated as A8-A15. This indicates that port 2 has a dual function. Port 2 is also used to provide 16-bit address bus for external memory along with Port 0. While port 0 provides the lower 8 bits via A0-A7.

\* P3 have I/O and serial, interrupt, timer role; P2, P0 have address role for external access.

e) Delay of 56.384

```

#include <reg 51.h>
void T1 Delay;
void main (void)
{
  while 1
  {
    P1 = 0x55;
    T1 Delay ();
    P1 = 0x AA
    T1 Delay ();
  }
}

void T1 Delay() {
  TMOD = 0x 01;
  TL1 = 0x00;
  TH1 = 0x35;

  TR = 1;
  while (TFO == 0);

  TR1 = 0;
  TF1 = 0;
}
}

```

f) Make an accurate delay of 50 ms (6)  
using timer 1 in mode 1.

Ans:- #include <reg51.h>  
sbit led = P0^0;  
void time Delay ()  
{

TH0 = 0x4B;

TLO = 0xFD;

TRO = 1;

while (TFO == 0);

TFO = 0;

TFO = 0;

}

void main

{

TMOD = 0x01;

while (1)

{

LED = 1

time Delay ();

LED = 0;

time Delay ();

}

}

X ——— X ——— X ——— X ——— X

Q2

ANS

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

```
Sbit button 1 = P1^0;
```

```
Sbit button 2 = P2^1;
```

```
Sbit out 1 = P3^0;
```

```
Sbit out 2 = P3^1
```

```
void main ()
```

```
{  
  if (button 1 == 0)
```

```
{  
  out 1 = 1;
```

```
}  
  out 2 = 1;
```

```
}  
  else
```

```
{  
  out 1 = 0;
```

```
  out 2 = 0;
```

```
}
```

User 2 code:-

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

```
#define out P2
```

```
Sbit in1 = P1^0;
```

```
Sbit in2 = P1^1;
```

```
unsigned int num = 0x000;
```

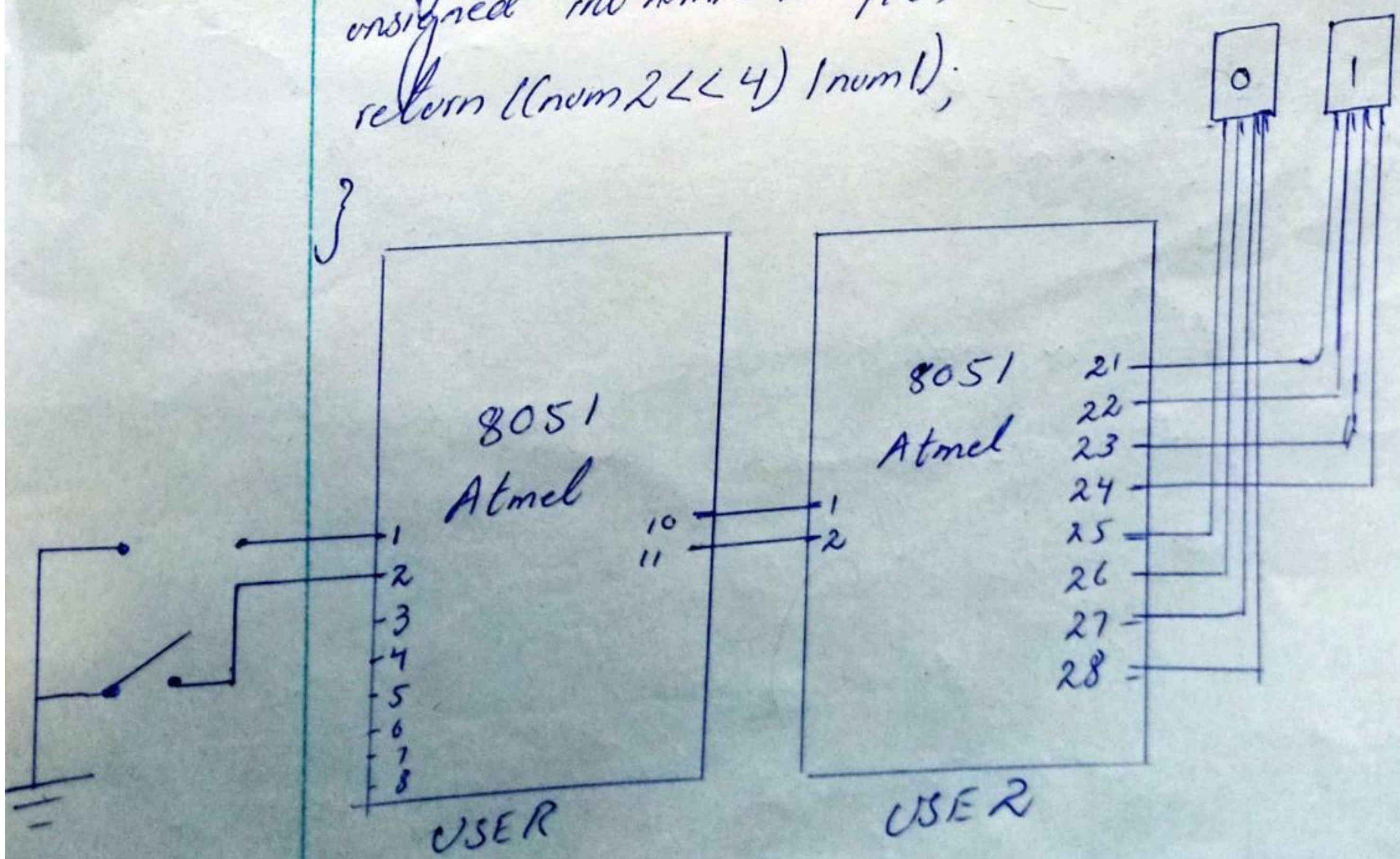
```
int convert (void);
```



```

void delay(void);
void main ()
{
    out = 0x00;
    while = (1)
    {
        if (in 1 = 1)
        {
            delay ();
            num ++
            out = convert ();
        }
        if (in 2 = 1)
        {
            delay ();
            num -- ;
            out = convert ();
        }
        unsigned int num1 = num / 10;
        unsigned int num2 = num / 10;
        return ((num2 << 4) | num1);
    }
}

```



Q3

Ans:- #include <reg 51.h>  
 Sbit m1p = P2^0;  
 Sbit m1n = P2^1;

Sbit m2p = P2^2;  
 Sbit m2n = P2^3;

Sbit F = P1^0;  
 Sbit Ba = P1^1;

void forward ()  
 {

m1p = 1;  
 m2p = 1;  
 m1n = 1;  
 m2n = 0;

}

void backward ()

{  
 m1p = 1;  
 m2p = 1;  
 m1n = 0;  
 m2n = 0;

}

void stop ()

{

m1p = 0;  
 m1n = 0;

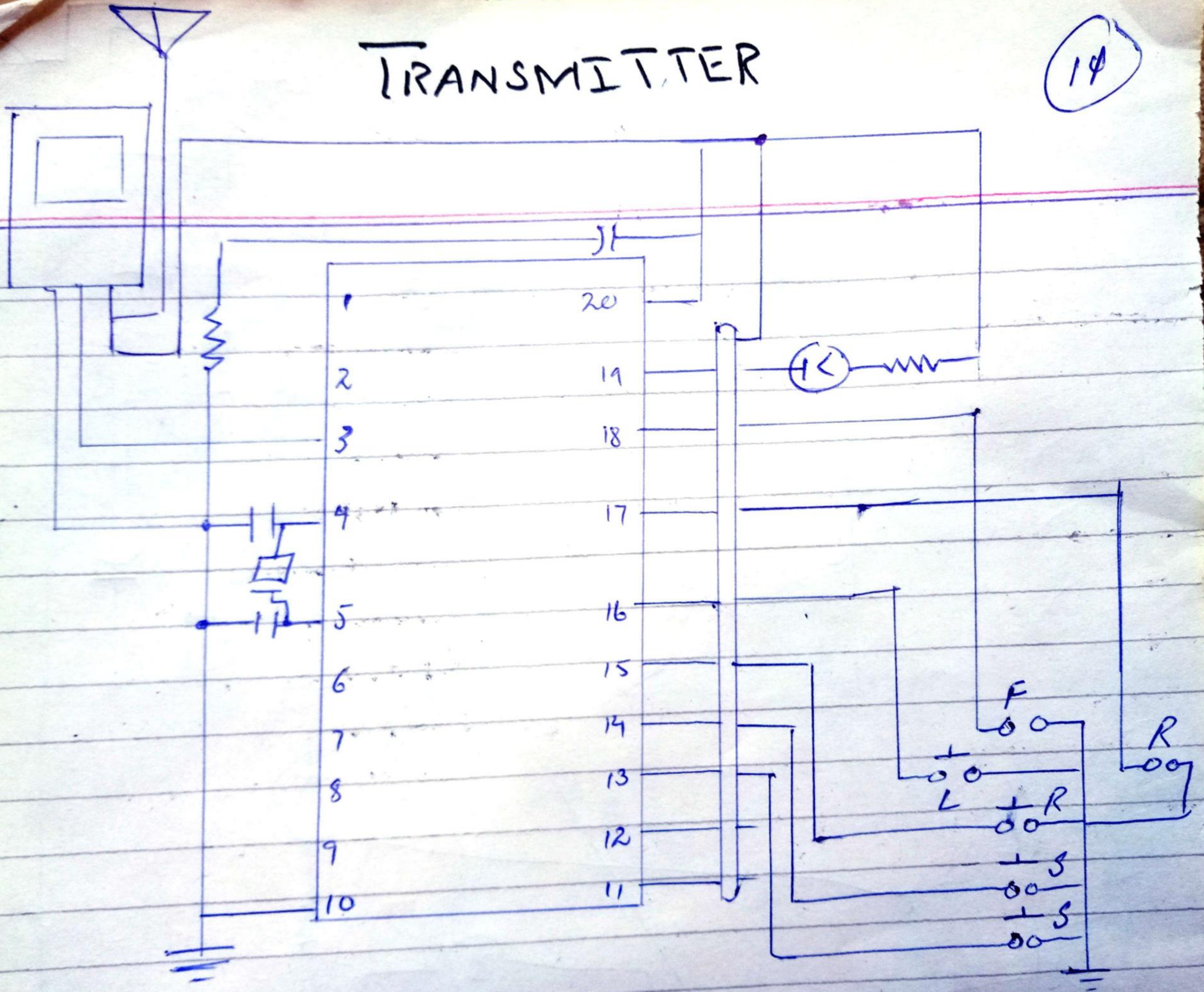
```
m2p = 0;  
m2n = 0;  
}
```

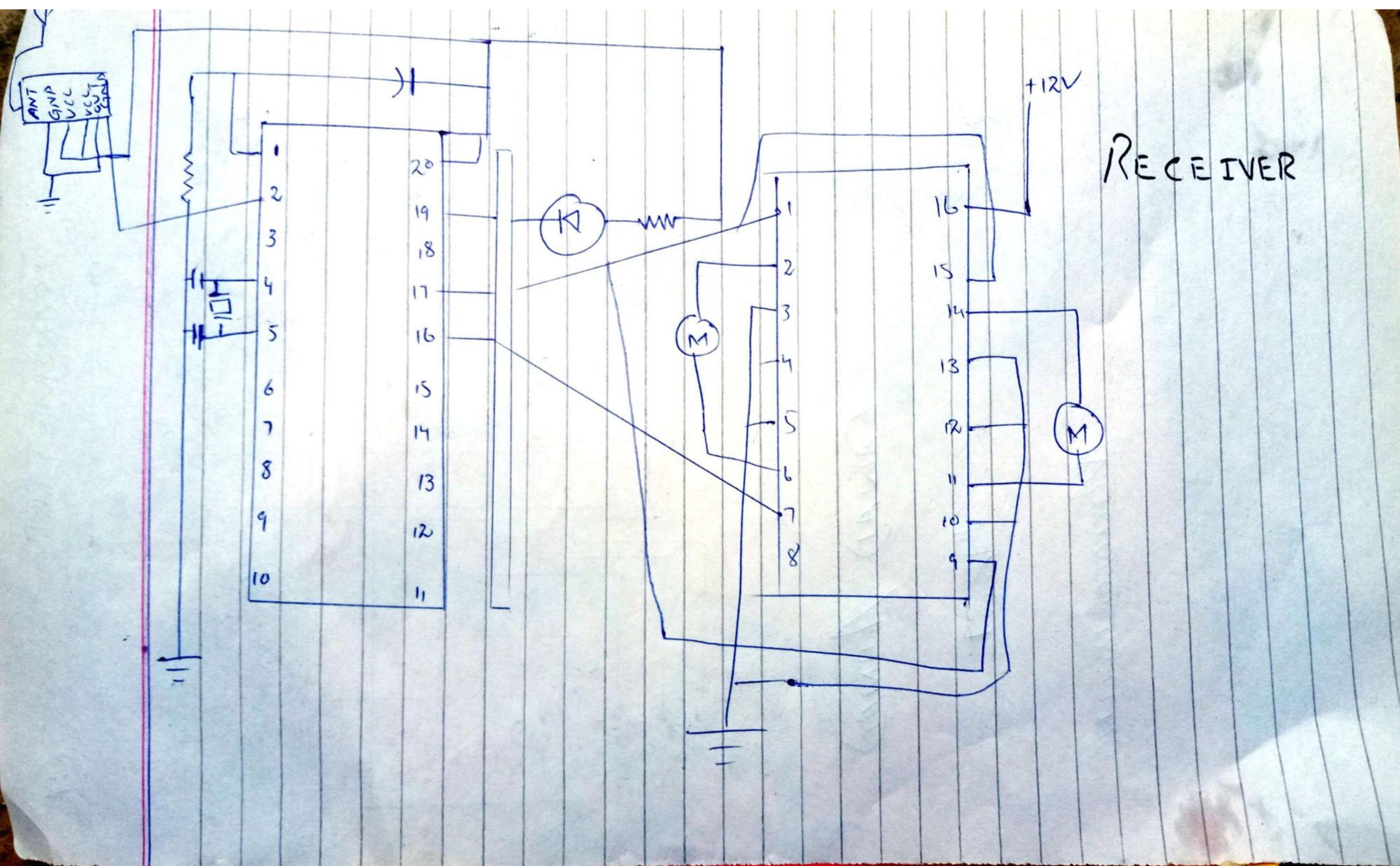
Code for Receiver

```
#include <reg51.h>  
{  
  void main ()  
  {  
    F = 0;  
    Ba = 0;  
    while (1)  
    {  
      if (F == 1)  
        forward ();  
      else if (Ba == 1)  
        backward ();  
      else  
        stop ();  
    }  
  }  
}
```

# TRANSMITTER

14





Q4(a)

13

ANS:- Sw 1 led is connected as an and gate when both or 1 led 2 will turn OFF after delay of ~~readed~~ ~~it~~ it will turn ON and if switch is ON and led 1 is OFF led 2 will turn ON and after the delay it will turn ON both process will continue till the loops end.

Q4(b)

14

```
#include <reg 50.h>
```

```
sbit SW1 = P3^1;
```

```
unsigned int i=0;
```

```
void delay_ms (unsigned int n)
```

```
{  
    unsigned int y, z;
```

```
    for (y=0; y <= n; y--)
```

```
        for (z=0; z <= 1275; z++);
```

```
}
```

```
void main ()
```

```
{  
    while (0)
```

```
{  
    if (SW1 == 1)
```

```
        P3 = i++;
```

```
        delay_ms (1000);
```

```
}
```

```
}
```