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Subject = Micro Controller

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Q. No: 01

e) Microprocessor:-

- Microprocessor is the heart of computer system.
- It is only a processor, so memory I/O components need to be connected externally.
- Memory and I/O has to be connected externally, so circuit becomes large.
- You cannot use it in compact system.
- Cost of entire system is high.
- Due to external components the total power consumption is high. Therefore it is not ideal for the devices running on stored power like batteries.
- Most of microprocessor do not have power saving feature.
- It is mainly used in personal computers.
- Microprocessor has a smaller number of registers, so more operations are memory based.

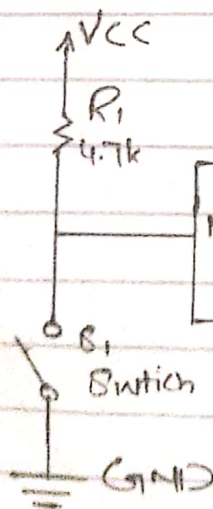
Micro Controller:-

- Microcontroller is the heart of embedded system.
- Microcontroller has a processor along with internal memory and I/O components.
- Memory and I/O are already present, and internal circuit is small.
- You can use it in compact system.
- Cost of entire system is low.
- As external components are low, total power consumption is less. So it can be used with devices running on stored power like batteries.
- Most of the microcontroller offer power saving mode.
- It is used mainly in washing machine, MP3 players.
- Microcontroller has more register, Hence the programs are easier to write.

(a) Pull-up resistor which are used to ensure that a wire is pulled to a high level in the absence of an input signal.

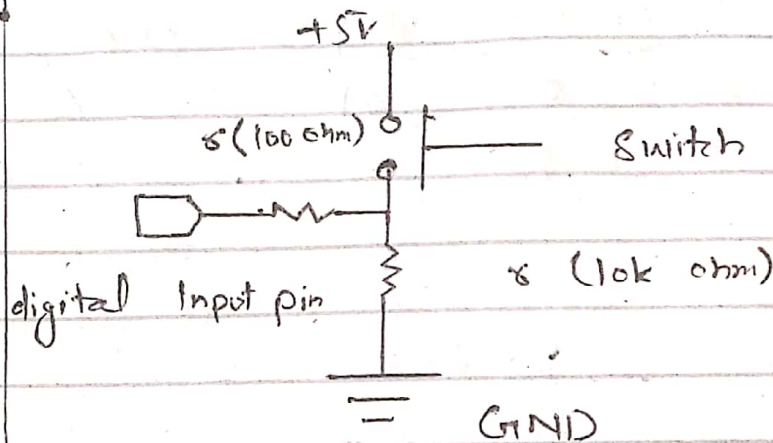
(General purpose Input/Output)

When the GPIO voltage level is low then it is in high or high impedance state. Then the pull-up and pull-down resistors are used to ensure GPIO which is always in a valid state.



(b) Pull-down resistor ensure the voltage between VCC and a microcontroller pin

is actively controlled. When switch is open. However, instead of pulling a pin to a high value such resistor pull the pin to a low value instead. Though being less commonly used, a pull down resistor is still a valid option.



c) The 8052 has an additional timer T_2 . All these counters count up on negative going edges at their inputs.

d) In 89C51 microcontroller we have 4 total number of input and output ports.

Q.2a)

Q. No: 01 (B)

a)

$$\underline{\underline{89501}}_{10} = ?_8$$

8	89501	
8	11187	-5
8	1398	-3
8	179	-6
8	21	-6
8	2	-5

256635

b)

$$\underline{\underline{64101}}_{10} = ?_2$$

2	64101	
2	3250	-1
2	1625	-0
2	812	-1
2	406	-0
2	203	-0
2	101	-1
2	50	-1

2	64101	
2	3250	1
2	1625	0
2	812	1
2	406	0
2	203	0
2	101	1
2	50	1
2	25	0
2	12	1
2	6	0
2	3	0
	1	1

(1100101100101)

(c) 9AB3₁₆ = ?₂

Binary	Hexadecimal
0000	0
0001	1
0010	2
0011	3
0100	4
0101	5
0110	6
0111	7
1000	8
1001	9
1010	A

P.7

1011

B

1100

C

$$9AB3_{16} = 1001101010110011$$

$$\textcircled{d} \quad 1110100100111_2 = ?_8$$

001110100100111

check table.

(16447)₈

$$\textcircled{e} \quad 1011000011011 =$$

0001 0110 0001 1011

1

6

1

B

check table

(161B)₁₆

Q: No: 2 (A)

Ans:-

#include <reg 51.h>

Sbit green led = P1 ^ 1

Sbit red led = P2 ^ 2

void delay int (x);

Sbit switch = 0;

int x, y;

void main ()

{

if (switch == 0) on state

green led = 1

red led = 0;

}

if else (switch == 1) off state

{

green led = 0;

red led = 1;

}

else

{

green led = 0;

red led = 0;

}

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Q. No: 2 (B)

Ans.

```
#include <LiquidCrystal.h>
LiquidCrystal lcd (12, 11, 5, 4, 3, 2);
int IR - 1 = 5; // exit
int IR - 2 = 4; // exit enter
int counter = 0;
int current state = 0;
int previous state - 1 = 0;
int previous state - 2 = 0;
int IR - 1 - op;
int IR - 2 - op;
void setup() {
    // put your setup code here to
    Serial.begin (9600);
    pinMode (IR - 1, INPUT);
    pinMode (IR - 2, INPUT);
    lcd.begin (16, 2);
}
void loop() {
    // put your main code here
    to
}
```

Q: No: 3

```
Ans #include <reg 51.h>
sbit led = P2^10;

void delay (unsigned int x) {
    unsigned int y, z;
    for (y = 0; y < x; y++)
        for (z = 0; z <= 1275; z++)
            ;
}

void main ()
{
    while (1)
    {
        led = 0;
        delay (-350);
        led = 1;
        delay (-350);
    }
}
```