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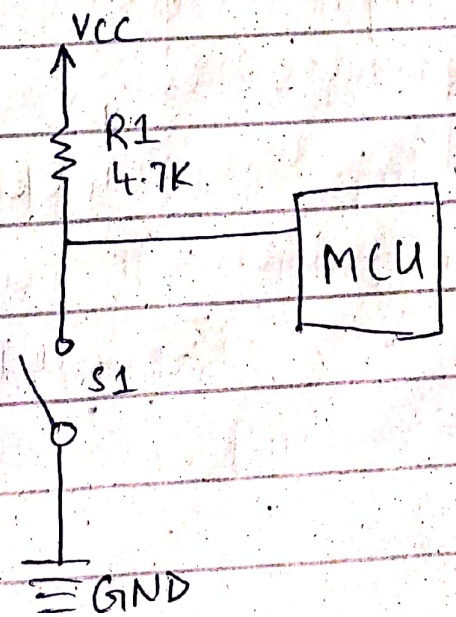
Micro controller BE(E)

Q1

(a)

Ans:- Pull up resistor:-

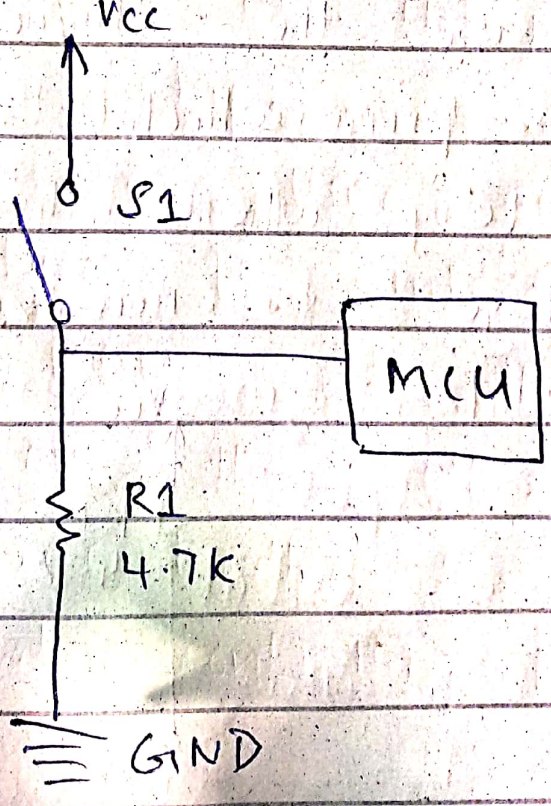
The basic function of pull-up resistor is to insure that given no other input, a circuit assumes a default value. These resistor are used in digital logic circuits to ensure the logic level at a pin which results in state where the input/output voltage is non-existance driving signal.



(b)

Ans:- Pull-down resistor:-

Pull-down resistor work in same manner as pull-up resistor, except that they pull the pin to a logical low value. They are connected between ground and the appropriate pin on a device.



(c)

Ans:- The 8051 has two timers T0 and T1, which may be configured and used individually. The 8052 has an additional timer T2. All these counters count up on negative going edges at their inputs

(d)

Ans:- 8051 microcontroller have 4 Input/output ports each of 8-bits, which can be configured as input or output. ~~pins allow the~~ Hence, total 32 input/output pins allow the microcontroller to be connected with the peripheral devices. Pin configuration

i-e, the pin can be configured as 1 for input and 0 for output as per the logic state.

Q(e)

Ans:- Microprocessor consists of only a central processing unit, whereas micro controller contains a CPU memory, Input / output all integrated into one chip.

Microprocessor uses an external bus to interface to RAM, ROM and other peripherals, on the other hand, Micro controller uses an internal controlling bus.

Q(b)

(a) $89501_{10} = ?_8$

Sol:-

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

$= 256635$

(b) $64101_{10} = ?_2$

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

$= (1100101100101)$

(c) $9AB3_{16} = ?_2$

Binary	Hexa decimal
0000	0
0001	1
0010	2
0011	3
0100	4
0101	5
0110	6
0111	7
1000	8
1001	9
1010	A
1011	B
1100	C

$9AB3_{16} = 1001\,1010\,1011\,0011$

(d) $111\,0100\,100\,111_2 = ?_8$

$\underbrace{001}_{1}\ \underbrace{110}_{6}\ \underbrace{100}_{4}\ \underbrace{100}_{4}\ \underbrace{111}_{7}$

$= (16447)_8$

Q2

(a)

```
#include <reg51.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;
```

9

red led = 0;

}

Q2

(a)

```
#Include <.Liquid Crystal.h>
Liquid crystal lcd (12,11,5,4,3,2);
int IR_1=5; //exit
    IR_2 = 4; // enter
int current state=0;
int previous state_1=0;
int previous state_2=0;
int_1_op;
int_2_op;
void setup() {
Serial.begin (9600);
pin mode (IR_1, INPUT);
pin mode (IR_2 INPUT);
lcd.begin (16,2);
}
void loop () {
lcd. set cursor (0,0);
lcd. print ("No. of CARS:");
lcd. set cursor (0,1);
```

```
lcd.print ("CAR");
IR_1_op = digitalRead (IR_1);
IR_2_op = digitalRead (IR_2);
Serial.println (digitalRead (IR_2));
if (IR_1_op == HIGH && IR_2_op == LOW)
{
current state = 1;
}
else
{
 current state = 0;
 }
if (current state != previous State_1)
{
if (current state == 1)
 {
  counter = counter + 1;
 lcd.setcursor (13, 0);
 lcd.print (counter);
 lcd.set cursor (4, 1);
  lcd.print ("ENTER");
 }
```

```
}
previous state_1 = current state;
 delay (250);
 Serial.println (counter);
 if (IR_1_op == LOW && IR_2_op == HIGH)
 {
  current state = 1;
 }
 else
 {
  current state = 0;
 }
 if (current state != previous state_2)
 {
if (current state != previous state_2)
{
if (current state == 1)
{
counter state = 1;
 counter = counter - 1;
 lcd.set cursor (13, 0);
```

~~lcd.set cursor~~

```
lcd.print(counter);
 lcd.set cursor (4, 1);
  lcd.print ("LEAVE");
  }
}

previousState_2 = currentState;
 delay (250);
Serial.println (counter);
}
```

Q3 Identify errors ?

(a)

```
#include <reg 51.h>
Sbit led = P2^8;
void delay (unsigned int x)
{
  unsigned int y, z;
  For (y=0; y=<x; Y++)
  For (z=0; z<=1275; z++)
  }
  Void main
  {
    Led=0
    Delay=(350);
    Led = 1;
    Delay (350);
  }
}
```