

Course name: Practical App. CS II
 Course Code: -
 Lecturer: Dr. Ahmed ElShafee

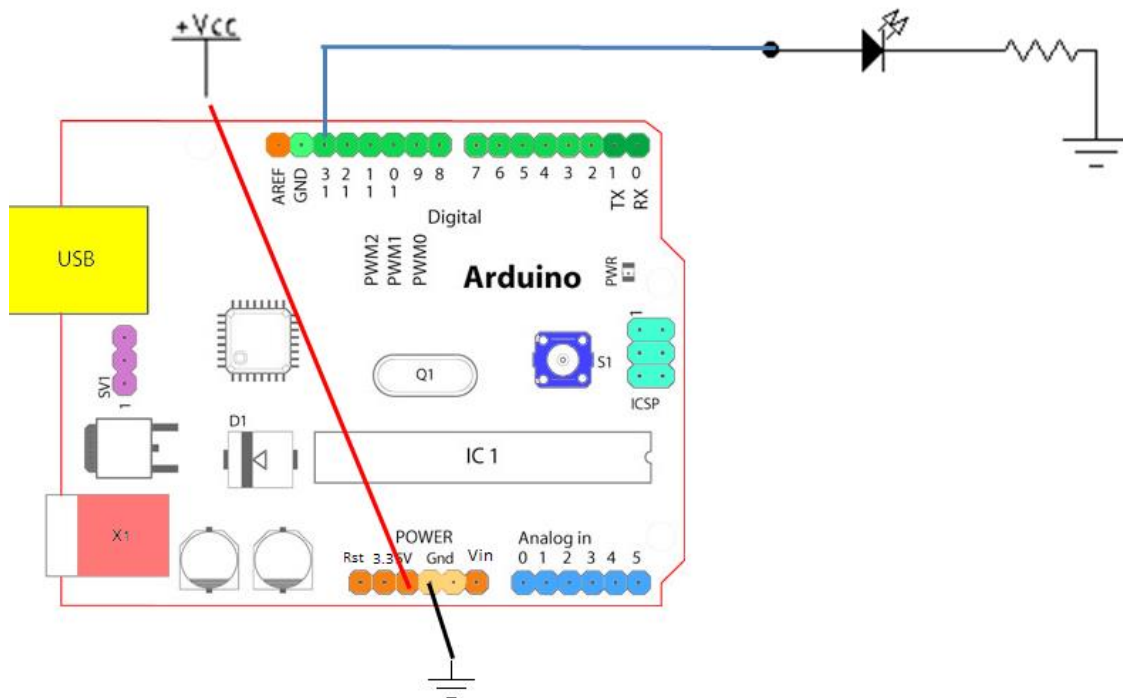
Exam number: Midterm, model answer
 Exam Date: July 2016
 Time Allowed: 60 minutes

Name: _____

ID: _____

[1]	[2]	[3]	Total
/10	/10	/10	/30
10	10	10	30

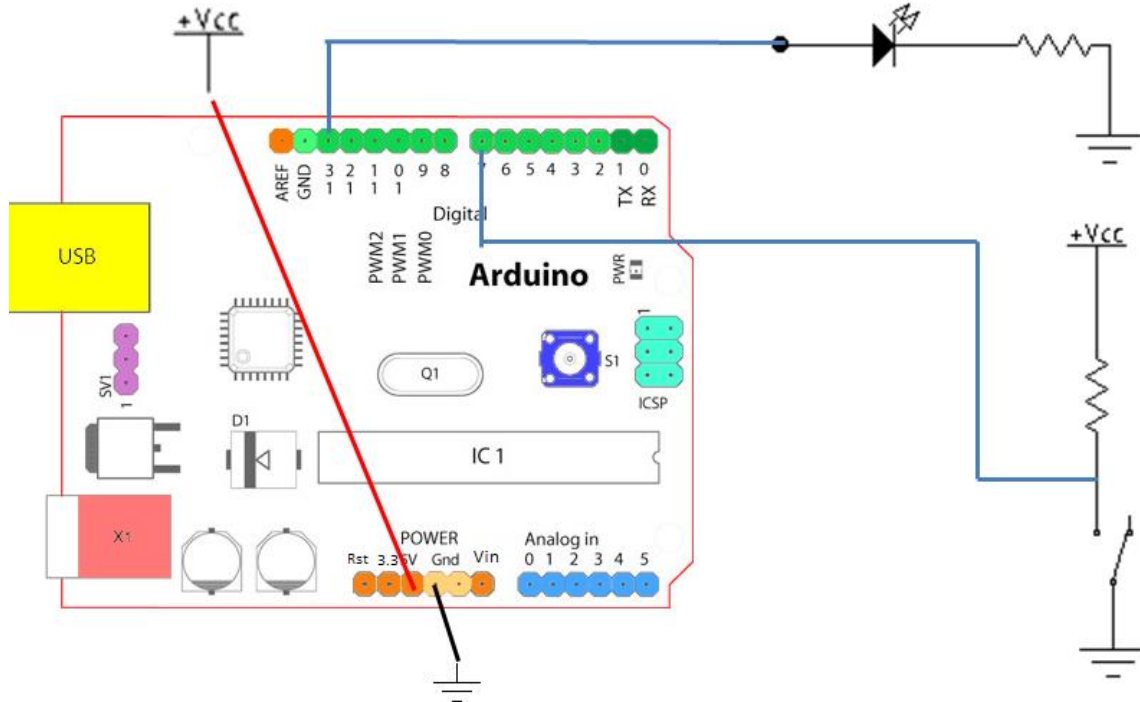
[1] For the following schematic of Arduino microcontroller, write a program that makes the led flash with each one second.





```
... #define LED 13 ...  
...  
... void setup() ...  
... { ...  
...   pinMode(LED,OUTPUT); ...  
... } ...  
...  
... void loop() ...  
... { ...  
...   digitalWrite(LED,HIGH); ...  
...   delay(1000); ...  
...   digitalWrite(LED, LOW); ...  
...   delay(1000); ...  
... } ...
```

[2] For the following schematic of Arduino microcontroller, write a program that makes the led flash with each half second while pressing the button, and led become off when releasing the button.





```
... #define LED 13
... #define BUTTOLed_statusN 7
... int Button_status=0;
... int Led_status=0;
...
... void setup()
... {
...   pinMode(LED, OUTPUT);
...   pinMode(BUTTON,INPUT);
... }
...
... void loop()
... {
...   Button_status=digitalRead(BUTTON);
...   if(Button_status==LOW)
...   {
...     delay(500);
...     if(Led_status==LOW)
...       Led_status=HIGH;
...     else
...       Led_status=LOW;
...   }
...   else
...     Led_status=LOW;
...   digitalWrite(LED,Led_status);
... }
```

[3]

Complete the following table

<p>Suggest suitable value for resistor that connects LED to MicroController</p>	<p>220 ohm</p>
<p>Suggest suitable value for resistor that connects press to Vcc</p>	<p>10 K</p>
<p>When pressing the button, the active value (volts) reaches the MC is?</p>	<p>0 volt</p>
<p>For Q1: If it's possible to connect the bread board Vcc to arduino 3.3 instead of 5 volts? Why?</p>	<p>Will operate 3.3 is above nominal LED voltage (1.3 volts)</p>
<p>For Q1: Suppose that you connect the bread board Gnd to Arduino 3.3 volts instead of Arduino Gnd. Is the circuit is going to operate, why?</p>	<p>Yes as the voltage difference will be $5 - 3.3 = 1.7$ Above led nominal voltage</p>