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EXPERIMENT NO.– 5

Problem Statement:

Write an Arduino program to control one or more LEDs by turning them ON, OFF, or making them blink at regular intervals.

Components Required:

- Arduino Board (UNO, Mega, etc.)
- LED(s)
- 22002 Resistor(s)
- Breadboard
- Jumper Wires
- Arduino IDE

Circuit Connections:

1. For a Single LED:
   - Connect the long leg (anode) of the LED to Digital Pin 7 on the Arduino through a 220 resistor.
   - Connect the short leg (cathode) to the GND pin.
2. For Multiple LEDs:
   - Connect multiple LEDs to different digital pins (e.g., 7, 8, and 9) through 2200 resistors.
   - Connect all cathodes to the GND pin.

Arduino Code for Single LED ON/OFF:

```
#define LED_PIN 7

void setup() {
pinMode(LED_PIN, OUTPUT);
}

void loop(){
digitalWrite(LED_PIN, HIGH);
delay(1000);
digitalWrite(LED_PIN, LOW);
delay(1000);

}
```

Arduino Code for Multiple LED Blinking:

```
#define LED1 7
#define LED2 8
#define LED3 9

void setup() {
pinMode(LED1, OUTPUT);
pinMode(LED2, OUTPUT);
pinMode(LED3, OUTPUT);
}

void loop() {
digitalWrite(LED1, HIGH);
delay(500);
digitalWrite(LED1, LOW);

digitalWrite(LED2, HIGH);
delay(500);
digitalWrite(LED2, LOW);

digitalWrite(LED3, HIGH);
delay(500);
digitalWrite(LED3, LOW);

delay(1000);
}
```

Output:

1. For Single LED:
    - The LED connected to Pin 7 will turn ON for 1 second, then turn OFF for 1 second continuously in a loop.
2. For Multiple LEDs:
    - LEDI, LED2, and LED3 will blink one after the other, each staying ON for 0.5 seconds before turning OFF.
    - After all LEDs blink once, the program will wait for 1 second before repeating the cycle.