**ECE 661-ARDUINO**

**Q. 1. What is Arduino board.**

Arduino is a project, open-source hardware, and software platform used to design and build electronic devices.

Arduino UNO includes 6 Analog pin inputs.

14 digital pins.

1 USB connector.

1 Power jack and

1 ICSP header.



**Practical. 1. LED Blink.**

#define LED 14

void setup(){

pinMode(14, OUTPUT);

}

 void loop(){

digitalWrite(14, HIGH);

delay(5000);

digitalWrite(14, LOW);

delay(1000);

}

**Practical. 2. Name Print (Hello World!).**

void setup()

{

Serial.begin(9600);

}

void loop()

{

Serial.println("Ekhlakh");

delay(1000);

}

**Practical. 3. LED Blink With Switch.**

int ledpin = 5;

int button = 4;

int buttonState = 0;

void setup(){

pinMode(ledpin, OUTPUT);

pinMode(button, INPUT);

}

void loop(){

buttonState=digitalRead(button);

… }

}

**Practical. 4. Check Humidity and Temperature (DHT11).**

#include "DHT.h"

#define DHTTYPE DHT11

#define dht\_dpin 2

DHT dht(dht\_dpin, DHTTYPE);

void setup(void)

{

dht.begin();

Serial.begin(9600);

Serial.println("Humidity and temperature\n\n");

… Serial.print(t);

Serial.println("C ");

delay(800);

}

**Practical. 5. 7 – Segment**

void setup() {

// put your setup code here, to run once:

pinMode(21, OUTPUT);//a

pinMode(5, OUTPUT);//f

pinMode(4, OUTPUT);//b

pinMode(22, OUTPUT);//g

pinMode(2, OUTPUT);//e

pinMode(14, OUTPUT);//c

pinMode(12, OUTPUT);//d

pinMode(13, OUTPUT);//dp

}

void loop() {

// put your main code here, to run repeatedly:

digitalWrite(21, LOW);

digitalWrite(5, LOW);

digitalWrite(4, LOW);

digitalWrite(22, HIGH);

digitalWrite(2, LOW);

digitalWrite(14, LOW);

digitalWrite(12, LOW);

digitalWrite(13, HIGH);

delay(2000);

//0

digitalWrite(21, HIGH);

digitalWrite(5, HIGH);

digitalWrite(4, LOW);

digitalWrite(22, HIGH);

digitalWrite(2, HIGH);

digitalWrite(14, LOW);

digitalWrite(12, HIGH);

digitalWrite(13, HIGH);

delay(2000);

//1

digitalWrite(21, LOW);

digitalWrite(5, HIGH);

digitalWrite(4, LOW);

digitalWrite(22, LOW);

digitalWrite(2, LOW);

digitalWrite(14, HIGH);

digitalWrite(12, LOW);

digitalWrite(13, LOW);

delay(2000);

//2

digitalWrite(21, LOW);

digitalWrite(5, HIGH);

digitalWrite(4, LOW);

digitalWrite(22, LOW);

digitalWrite(2, HIGH);

digitalWrite(14, LOW);

digitalWrite(12, LOW);

digitalWrite(13, LOW);

delay(2000);

//3

digitalWrite(21, HIGH);

digitalWrite(5, LOW);

digitalWrite(4, LOW);

digitalWrite(22, LOW);

digitalWrite(2, HIGH);

digitalWrite(14, LOW);

digitalWrite(12, HIGH);

digitalWrite(13, LOW);

delay(2000);

//4

digitalWrite(21, LOW);

digitalWrite(5, LOW);

digitalWrite(4, HIGH);

digitalWrite(22, LOW);

digitalWrite(2, HIGH);

digitalWrite(14, LOW);

digitalWrite(12, LOW);

digitalWrite(13, LOW);

delay(2000);

//5

digitalWrite(21, LOW);

digitalWrite(5, LOW);

digitalWrite(4, HIGH);

digitalWrite(22, LOW);

digitalWrite(2, LOW);

digitalWrite(14, LOW);

digitalWrite(12, LOW);

digitalWrite(13, LOW);

delay(2000);

//6

digitalWrite(21, LOW);

digitalWrite(5, HIGH);

digitalWrite(4, LOW);

digitalWrite(22, HIGH);

digitalWrite(2, HIGH);

digitalWrite(14, LOW);

digitalWrite(12, HIGH);

digitalWrite(13, LOW);

delay(2000);

//7

digitalWrite(21, LOW);

digitalWrite(5, LOW);

digitalWrite(4, LOW);

digitalWrite(22, LOW);

digitalWrite(2, LOW);

digitalWrite(14, LOW);

digitalWrite(12, LOW);

digitalWrite(13, LOW);

delay(2000);

//8

digitalWrite(21, LOW);

digitalWrite(5, LOW);

digitalWrite(4, LOW);

digitalWrite(22, LOW);

digitalWrite(2, HIGH);

digitalWrite(14, LOW);

digitalWrite(12, LOW);

digitalWrite(13, LOW);

delay(2000);

//9

}

**Practical. 6.**

const int postpin=12;

const int LED=2;

int val=0;

void setup() {

pinMode(LED, OUTPUT);

// set ESP32 pin to output mode

Serial.begin(9600);

}

void loop() {

val=analogRead(postpin);

digitalWrite(LED, HIGH);

delay(val);

digitalWrite(LED, LOW);

delay(val);

Serial.println(val);

}

**Practical. 7. ESP32Servo**

#include<ESP32Servo.h>

Servo myservo;

int pos=0;

void setup(){

myservo.attach(21);

pinMode(5,INPUT\_PULLUP);

pinMode(18,INPUT\_PULLUP);

Serial.begin(9600);

}

void loop(){

… if(digitalRead(18)==LOW)

{

pos--;

Serial.println(pos);

myservo.write(pos);

delay(15);

if(pos<=0)

pos=0;

}

}