1. Write and execute a program to interface Ultrasonic Sensor with Arduino kit.

Q.1 What is Sensor?

Q.2 Explain Ultrasonic Sensor in brief.

Q.3 Write a difference between sensors ad actuators.

ultrasonic in arduino code

connection : TRIG pin to pin 9, ECHO PIN TO PIN 10 , gnd to gnd & 5v to 5v

#define TRIG\_PIN 9 // Define the digital output pin for the ultrasonic

#define ECHO\_PIN 10 // Define the digital input pin for the ultrasonic

void setup() {

Serial.begin(9600);

pinMode(TRIG\_PIN, OUTPUT);

pinMode(ECHO\_PIN, INPUT);

}

void loop() {

// Send a pulse to the ultrasonic sensor to trigger a measurement

digitalWrite(TRIG\_PIN, LOW);

delayMicroseconds(2);

digitalWrite(TRIG\_PIN, HIGH);

delayMicroseconds(10);

digitalWrite(TRIG\_PIN, LOW);

// Read the duration of the echo signal (in microseconds)

long duration = pulseIn(ECHO\_PIN, HIGH);

// Calculate the distance in centimeters using the speed of sound (343 m/s)

// and the formula: Distance = (Duration \* Speed of Sound) / 2

float distance\_cm = (duration \* 0.0343) / 2;

// Print the measured distance to the serial monitor

Serial.print("Distance: ");

Serial.print(distance\_cm);

Serial.println(" cm");

delay(1000); // Wait for a second before taking the next measurement

}