Q1.

const char HEADER = 'H'; // Character to mark the start of a message

void setup() {

Serial.begin(9600);

// Set digital sensor pins (2-4 for rain, 5-8 for wind direction) as inputs with pull-up resistors

for (int i = 2; i <= 8; i++) {

pinMode(i, INPUT\_PULLUP);

}

// Set analog sensor pins (0 for temperature, 1 for humidity) as inputs

pinMode(0, INPUT);

pinMode(1, INPUT);

}

void loop() {

Serial.write(HEADER); // Send header byte

// Pack and send digital sensor data (rain and wind direction)

int digitalData = 0;

int bit = 0;

// Rain sensor states (pins 2-4)

for (int i = 2; i <= 4; i++) {

bitWrite(digitalData, bit, !digitalRead(i)); // Invert logic as pull-up is used (high = no rain)

bit++;

}

// Wind direction sensor states (pins 5-8) - modify logic based on sensor setup

for (int i = 5; i <= 8; i++) {

bitWrite(digitalData, bit, digitalRead(i)); // Set bit if wind sensor is active

bit++;

}

sendBinary(digitalData); // Send the packed digital data

// Send analog sensor data (temperature and humidity)

for (int i = 0; i < 2; i++) {

int analogValue = analogRead(i);

sendBinary(analogValue); // Send each analog reading

}

delay(1000); // Send data every second

}

// Function to send a given integer value as two bytes

void sendBinary(int value) {

Serial.write(lowByte(value));

Serial.write(highByte(value));

}