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**DATE:**

**ST JOSEPH’S UNIVERSITY, BENGALURU -27**

**M.Sc. Computer Science – III SEMESTER**

**SEMESTER EXAMINATION: OCTOBER 2023**

**(Examination conducted in November /December 2023)**

**CSDE9322-INTERNET OF THINGS**

**(For current batch students only)**

**Time: 2 Hours Max Marks: 50**

**This paper contains TWO printed pages and THREE parts**

**PART A**

**Answer all the questions (2\*5=10)**

1. Distinguish between HTTP & MQTT.
2. List the key features of M2M.
3. Differentiate between a Sensor and Actuator.
4. Define an IOT device.
5. Summarize any 4 AMQP frame types.

**PART B**

**Answer any FIVE of the following questions (4\*5=20)**

1. Explain the zero compression rule of IPV6 with an example.
2. Differentiate between REST and WebSocket API.
3. List the programing languages preferred by IOT devices? Explain why Python is widely used for IOT devices
4. List the communication models used in IOT. Explain the exclusive Pair Communication model.
5. Elucidate briefly the benefits of IOT.
6. Mention the benefits of remote IOT device monitoring.
7. Describe the protocols of Transport Layer.

**PART C**

**Answer any TWO of the following questions (2\*10=20)**

13 a) Give the steps involved in the connections and Micropython code for the given requirements on Raspberry Pi Pico

1. Blinking Three LED’s alternatively with a delay of 10s.

## 2)Control LED brightness.

b) Describe the MQTT communication.

14 a) Explain step by step the Arduino code for the given requirement

“Single switch to control three LED’s”. LED connected to pin 11,12. Switch is connected to pin 8. Switch is high: Led1 and Led3 should glow. Switch is low: Led2 glow.

b) Measure the distance from obstacle and display on the serial monitor using ultrasonic sensor and glow the LED.

For distance 30-60cm glow the red LED.

For distance greater than 60cm glow the green LED.

15) a) With a neat block diagram illustrate the 4 messaging modes of COAP .

b) Summarize briefly about the communication Protocol-Bluetooth.

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