

### Section-D

**Note: Long answer questions. Attempt any two question out of three Questions. (2x8=16)**

- Q.23 Explain in detail how sensors and actuators are integrated into an industrial IoT system using Arbuino. (CO2)
- Q.24 Describe the concept of Fog computing and its advantages for Industrial IoT applications. (CO4)
- Q25 Discuss the architecture of Industrial IoT, including its components and communication protocols. (CO1)

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### 5th Sem. / Automation & Robotics Subject : Industrial IoT

Time : 3 Hrs.

M.M. : 60

### SECTION-A

**Note: Multiple Choice Questions. All Questions are compulsory. (6x1=6)**

- Q.1 \_\_\_\_\_ is an example of an actuator in an Industrial IoT system? (CO2)
- a) Temperature sensor    b) Ultrasonic sensor  
c) Motor    d) Humidity sensor
- Q.2 What does LoRaWAN Stand for? (CO3)
- a) Long Range Wireless Area Network  
b) Local Range Wireless Areas Network  
c) Low Range Wide Access Network  
d) Low Resource Wireless Area Network
- Q.3 \_\_\_\_\_ would most likely be used for gas detection in Industrial IoT? (CO2)
- a) IR Sensor    b) Ultrasonic Sensor  
c) MQ2 Sensor    d) Temperature Sensor

- Q.4 In an Industrial IoT system \_\_\_\_\_ is responsible for initiating control actions? (CO2)
- a) Sensor                      b) Actuator
- c) Cloud Server              d) Edge Device
- Q.5 \_\_\_\_\_ is ideal for detecting the presence of a human in Industrial IoT applications? (CO2)
- a) MQ2 Sensor              b) Ultrasonic Sensor
- c) PIR Sensor              d) DHT 22 Sensor
- Q.6 Which sensor can be used to detect obstacles in Industrial IoT Applications? (CO2)
- a) IR Sensor              b) Temperature Sensor
- c) Humidity Sensor      d) Pressure Sensor

### Section-B

**Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)**

- Q.7 Define the term "Industrial IoT" (CO1)
- Q.8 Name two common sensors used in Industrial IoT Applications. (CO2)
- Q.9 Expand MQTT is IOT communication. (CO3)
- Q.10 What is "edge computing." (CO4)
- Q.11 Name two development boards commonly used in Industrial IoT. (CO5)

- Q.12 Give one advantage of using LoRaWAN in Industrial IoT. (CO3)

### Section-C

**Note: Short answer type Question. Attempt any eight questions out of Ten Questions. (8x4=32)**

- Q.13 Compare Bluetooth and BLE (Bluetooth Low Energy) on various parameters? (CO3)
- Q.14 Compare Industrial IoT with the traditional IoT. (CO1)
- Q.15 Explain the working principle of an IR sensor. (CO2)
- Q.16 Describe the role of IEEE 802.15.4 in Industrial IoT. (CO3)
- Q.17 What is the importance of real-time data collection in Industrial IoT? (CO3)
- Q.18 Explain how to interface a temperature sensor with a Raspberry Pi. (CO5)
- Q.19 How does Fog computing differ from Cloud computing? (CO4)
- Q.20 Describe the Machine-to-Machine (M2M) communication in Industrial IoT. (CO5)
- Q.21 What are the security challenges in deploying Industrial IoT. (CO4)
- Q.22 Explain how LoRa communication is used in Industrial IoT. (CO3)