Q.20 Explain the types of IoT interactions in Industrial IoT. Provide one example of direct interaction. (CO2)

Q.21 What is an IoT node? Discuss its role in an Industrial IoT system with example. (CO2)

Q.22 Discuss the role of a temperature sensor in Industrial IoT. (CO3)

SECTION-D

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

Q.23 What is troubleshooting? Explain the troubleshooting process for common Arduinorelated issues. Discuss possible causes and their corresponding solutions. (CO5)

Q.24 Discuss the differences between cloud computing and fog computing in Industrial IoT. Explain their roles with one example each in factory setting? (CO5)

Q.25 Explain the architecture of Industrial IoT with the help of suitable diagram? Discuss its key components in detail. (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 What is a core component of Industrial IoT (IIoT) architecture? (CO1)

a) Analog communication protocols
b) Manual control systems
c) Standalone computing devices
d) Networked sensors and actuators

Q.2 In Industrial IoT, what is the role of an IoT node? (CO2)

a) Performs switching operations
b) Acts as a database server
c) Works with non-networked sensors
d) Collects and send data within the network

Q.3 What is the primary function of an IR sensor? (CO3)

a) Magnetic field detection
b) Gas concentration sensing

c) Detecting presence or distance

d) Measuring temperature gradients

Q.4 What is the main role of a digital switch in an IIoT system? (CO2)

a) Measuring continuous sensor data

b) Generating random numbers

c) Storing cloud data

d) Providing binary on/off control signals

Q.5 Z-wave is commonly used for _____ in IIoT? (CO4)

a) Wired control systems

b) Low-power automation devices

c) Cloud computing servers

d) High-power industrial motors

Q.6 What is the primary role of a cloud database in IIoT? (CO5)

a) Creating communication protocols

b) Storing and managing large volumes of IoT data remotely

c) Measuring physical parameters

d) Generating mechanical motion

SECTION-B

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

Q.7 IIoT is mainly used in consumer electronics. (True/False) (CO1)

Q.8 Ultrasonic sensors measure distance using magnetic fields. (True/False) (CO3)

Q.9 IEEE 802.15.4 is designed for high-speed, long range internet connections.(True/False) (CO4)

Q.10 What capability is enabled by connecting Arduino to the web in IIoT? (CO2)

Q.11 In IIoT, grabing content from a web page helps retrieve ____ data for monitoring or control. (CO5)

Q.12 M2M interaction in IIoT allows automated _____ exchange between devices. (CO2)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Define Industrial IoT and explain how it differs from traditional IoT with one example. (CO1)

Q.14 List major challenges in implementing Industrial IoT in a factory setting. Explain any one. (CO5)

Q.15 Compare open-loop and closed-loop control system in IIoT. Give examples of each. (CO2)

Q.16 With the help of suitable example to describe the role of IEEE 802.15.4 in Industrial IoT communication. (CO4)

Q.17 Explain how an ultrasonic sensor function in Industrial IoT. (CO3)

Q.18 Discuss how LoRaWAN is used in Industrial IoT. List its advantages? (CO4)

Q.19 Compare ZigBee and Bluetooth Low Energy (BLE). (CO4)