

SHRI MATA VAISHNO DEVI UNIVERSITY, KATRA
Exam: Minor-1, Session: January-June-2023

Entry No:

Total number of pages: [01]
Total number of questions: [04]

B. Tech || ECE || SEM 6th
Internet of Things (IoT)
Subject Code: ECL: 3181

Time allowed: 1.30 Hrs

Max Marks: 20

Important Instructions:

- All questions are compulsory
- Assume any missing data.
- Answer should be precise and point to point.

Section A

Q.1. Answer the following:

A. Which of the following is NOT a data and communication protocol?
a. MQTT, b. AMQP, c. WebSocket, ~~d. All of the above~~

[6X1=6]

B. CoAP stands for what?

contains application protocol

C. Which of the following is NOT true? a. M2M is not a subset of IoT, b. IoT is a subset of CPS, c. IoT, and M2M are the same, ~~d. All of the above~~.

D. What is the full form of RPL protocol?

E. In MQTT, a _____ subscribes to a topic. a. client, ~~b. broker~~, c. publisher, d. All of the above.

J. Which of the following is NOT a characteristic of IoT? a. Intermittent connectivity, ~~b. Ambiguous naming & addressing~~, c. Scalable architecture, d. The abundance of sleeping nodes.

Section B

Q.2. Explain the technical deviation of IoT from regular web with schematic diagram. Also, list the various components of IoT. [4]

Q.3. Explain the following:

A. Sensor vs. Transducer vs Actuator. B. IoT vs. M2M vs WoT. C. MQTT vs AMQP vs CoAP. [6]

Q.4. What are the major challenges for IoT deployment? Explain in short. Also, do the comparative analysis of various Arduino. [4]

Course Outcomes

After learning the course, the student will be able:

- Understand the vision of IoT from a global context.
- Understand the application of IoT.
- Determine the Market perspective of IoT.

SHRI MATA VAISHNO DEVI UNIVERSITY, KATRA
Exam: Minor-2, Session: January-June-2023

Entry No: _____

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Total number of pages: [01]

Total number of questions: [04]

B. Tech || ECE || SEM 6th

Internet of Things (IoT)

Subject Code: ECL: 3181

Time allowed: 1.30 Hrs

Max Marks: 20

Important Instructions:

- All questions are compulsory
- Assume any missing data.
- Answer should be precise and point to point.

Section A

Q.1. Answer the following:

- A. In general, Z-wave protocol for communication among devices is used for _____. [5X1=5]
a. Topology management, b. Home automation, c. Network configuration, d. None of the above ✓
- B. Electromagnetic communication in nanonetworks takes place in _____ frequency band.
a. GHz, b. THz, c. Nanometer, d. All of the above ✓
- C. Which of the following is NOT a property of Mobile Ad Hoc Network?
a. Self-Collaborate, b. Self-Heal, c. Self-Protect, d. Self-Optimize.
- D. Which of the following UAV network topology is decentralized?
a. Star, b. Infrastructure mesh, c. Ad hoc mesh, d. None of the above? ✓
- E. HART stands for what? ✓

Section B

- Q.2. Do the comparative analysis: Z-Wave, M2M, WSN, and MANET. [4]
- Q.3. Explain the following:
a. ISA 100.11A vs. ZigBee. b. List the various applications of a WSN. c. MWSN Vs UWSN. [6]
- Q.4. Write program using Arduino IDE for Blink 3 LED and design a traffic control system. And Explain the basic components of a sensor node. [5]

Course Outcomes

After learning the course, the student will be able:

- Understand the vision of IoT from a global context.
- Understand the application of IoT.
- Determine the Market perspective of IoT.

Entry No: _____

Total number of pages: [02]
Total number of questions: []

B. Tech || ECE || SEM 6th
Internet of Things (IoT)
Subject Code: ECL: 3181

Time Allowed: 3.00 Hrs

Max Marks: 50

Important Instructions:

- All questions are compulsory
- Assume any missing data.
- Answer should be precise and point to point.

Section A

Q.1. Answer the following:

A. HART stands for what?

[10X1
=10]

B. In what type of pin, data pin of DHT sensor should be connected?

a. Analog Pin, b. Digital Pin, c. Any One of (a) and (b), d. None of This

C. What is the full form of SDN?

D. IEEE 802.15.4 operates in _____ band. a. LLC, b. SSCS, c. ISS, d. ISM.

E. Relay is a kind of: a. Sensor, b. Actuator, c. Hub, d. Router.

F. The BCM 14 pin of Raspberry Pi is:

a. Physical pin 8, b. UART, c. Transmitter pin, d. All of these.

G. What is the Smart dust?

H. Bind() function in Python socket programming is used to:

a. Specify the port for service on the specified host, b. Read data from the socket, c. Send data to the socket, d. Initiate the connection

I. Which of the following is TRUE for high-end sensor nodes in M2M node types?

a. High density deployment, b. Unable to handle multimedia data, c. Mobility is essential, d. All of the above

J. Electromagnetic communication in Nano-networks takes place in _____ frequency band.

a. GHz, b. THz, c. Nanometer, d. All of the above

Section B

Q.2. Explain the term 'Smart E-healthcare' in IoT. What are the different layers of the IoT protocol stack? What is the market perspective of IoT? [6]

Q.3. Do the case studies of role of IoT in Smart Cities and Smart Homes? [4]

Q.4. State the difference between IoT and IIoT. Write the classification of IoT protocols. What are the challenges or risks associated with IoT? [6]

Q. 5. Write a Python program for showing temperature and humidity using a DHT11 sensor using Raspberry. Write Program for monitor temperature using Arduino.

Q. 6. Explain the following (any six):

- IPv4 vs IPv6.
- IoT vs WSN vs IoV.
- What are mostly used IoT protocols?
- What is Bluetooth Low Energy?
- Cloud vs Fog vs Edge Computing?
- Thermal vs Magnetic Actuator.
- List the supported data type of Arduino.

Q. 7. Explain the following different connectivity technologies in the IoT context: Z-Wave, ISO 100, NFC, 6LoWPAN, IEEE 802.15.4, and Wireless HART

Course Outcomes

After learning the course, the student will be able:

- Understand the vision of IoT from a global context.
- Understand the application of IoT.
- Determine the Market perspective of IoT.
- Use of Devices, Gateways and Data Management in IoT.
- Building state of the art architecture in IoT.
- Application of IoT in Industrial and Commercial Building Automation and Real World Design Constraints.

-----*** wish you all the best ***-----