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Kharghar, Navi Mumbai - 410 210.

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING IN
ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING
ACADEMIC YEAR 2022-23
QUESTION BANK**

Class/Sem: Third Year/V

Course Name: Internet of Things (CSLO5013)

MODULE I Introduction to IoT

1. Define IoT and list out the characteristics of IoT.
2. Write and explain different functional blocks of IoT.
3. Explain the conceptual frame work of IoT.
4. Explain in detail logical design of IoT.
5. Quote the characteristics and trends in smart Objects.
6. Explain in detail physical design of IoT.

MODULE II IoT Architecture

1. Demonstrate the Simplified IoT Architecture and Core IoT Functional Stack with neat diagram.
2. Compare the two IoT Architectures briefly.
3. Tabulate the Alternative IoT Reference Models.
4. Explain IoT world forum standardized architecture.
5. What are the different drivers behind new network architecture?
6. Summarize in detail IoT data management and Compute stack.
7. Analyse in detail the Hierarchy followed in Edge, Fog and Cloud with suitable illustration.

MODULE III Principles of Connected Devices and Protocols in IoT

1. Write a short note on a) RFID b) NFC c) LiFi.
2. Tabulate the protocol stacks utilizing IEEE 802.15.4.
3. Analyze in detail LoRaWAN technology, illustrating the layers, MAC format and Architecture.
4. Tabulate the protocols used for cellular connectivity.
5. Analyze the use of ZigBee. Illustrate the high-level ZigBee protocol stack.
6. Explain the roles of BLE. Differentiate BLE and conventional Bluetooth.
7. Explain about the following protocols in detail.
 - a) Z-wave
 - b) Narrow Band IoT
8. Explain the features and architecture of 6LoWPAN with a neat diagram.

MODULE IV **Edge to Cloud Protocol**

- 1.Explain HTTP and WebSocket protocols and list out the differences between them.
- 2.Describe about the STOMP and AMQP protocols with its architecture.
- 3.Describe about Application Layer Protocols: (i) CoAP (ii) MQTT
- 4.Compare all the application layer protocols.
- 5.What are the different IoT platforms.
- 6.Explain the architecture and features of MQTT in detail. What are the added features in MQTT-SN

MODULE V **IoT and Data Analytics**

- 1.Explain about the data lakes management in organizing data.
- 2.Explain in detail the need of analytics in IoT and brief the challenges faced by IoT data analytics.
- 3.Explain the strategies to organize the data for IoT analytics.
- 4.Explain about the data visualization in dashboards.
5. Create and design any dashboard with visualizing alerts on any IoT based application.

MODULE VI **IoT Application Design**

- 1.Explain how IoT used in the smart lighting with the architecture and give the brief details about the components used.
- 2.Examine the challenges faced for parking in cities, explain how smart parking provides solution to it?
3. Differentiate IoT and M2M.
- 4.Explain how IoT is used in the following applications.
 - a) Smart Library
 - b) Forest fire detection
 - c) Air pollution monitoring
- 5.Explain the use cases of IoT and I-IoT. List out the differences and similarities between them.
6. Explain how IoT is used in Home Intrusion detection.
7. Explain about IoB and list out its features and applications.
- 8.Write a short note on
 - a) Smart irrigation
 - b) Weather monitoring
 - c) Weather reporting Bot

Course Incharge

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