(Please write your Exam Roll No.) Exam Roll No. .....

END TERM EXAMINATION

SIXTH SEMESTER [B.TECH] JUNE 2024

Paper Code: CIE-330T/ICE-328T/IOT-324T **Subject: Introduction to Internet of things**

Time: 3 Hours **Maximum Marks: 75**

Note: Attempt five questions in all including Q.No.1 which is compulsory. Select one question from each unit.

Q1 Attempt all questions

(a) Write the characteristics of IOT system. (3)

(b) Why gateway is important for device management in IOT systems? (3)

(c) List the basic difference between transducers, sensors, and actuators. (3)

(d) Why is an IDE required for prototyping the embedded device platform? (3)

(e) What is a smart sensor, how it is different from sensor node. (3)

UNIT-I

Q2 (a) Explain the conceptual model and capabilities of an IoT solution with a neat diagram. (10)

(b) Explain the role of four-layers in a smart city architectural framework. (5)

Q3 (a) Specify functions of CoAP, RESTful HTTP, MQTT and XMPP (Extensible Messaging and Presence Protocol) in IoT applications. (7.5)

(b) Correlate M2M architectural domains with IoT architecture levels. (7.5)

UNIT-II

Q4 (a) Compare NFC and RFID protocols which can be used for device communication in IoT. (7.5)

(b) Describe usages of Intel Galileo, Raspberry and BeagleBone boards for IoT applications. (7.5)

Q5 (a) What are the data-link, network, security and application layer protocols used in the WSNs? (10)

(b) Explain various node behaviours in WSN? (5)

UNIT-III

Q6 (a) Explain, why IoT device nodes use RPL in place of IPv6 and IPv4, why a CoAP client in place of HTTP client and 6LoWPAN at the adaptation layer in place of MAC. (10)

(b) What are the header fields in 6LoWPAN? (5)

Q7 (a) What is MAC address? How does a MAC address assign to an IoT node? How does address resolved to enable packets in Ip network reach the node. (10)

(b) A subnet mask is 1111 1111 1111 1111 1001 0000 0000 0000. IP address is 198.136.56.2. How do these figures provide subnet and host addresses? (5)

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UNIT-IV

Q8 What is Arduino UNO? Explain its components with Pin Structure. List its features. **(15)**

Q9 Draw a circuit diagram of connecting DHT sensor with Arduino. Explain its pin structure. Write a program to connect DHT sensor with Arduino to read the Temperature and Humidity. **(15)**

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