(T) Roll No. .....

PAPER ID—21144

B. Tech. EXAMINATION, 2025

(Fourth Semester)

COMPUTER SCIENCE AND ENGNINEERING

Internet of Things and Cyber Technology including Block Chain Technology

Introduction to Internet of Things

Time : 3 Hours *Maximum Marks : 70*

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

1. (a) Specify the real world design constraints for IoT applications. 2

(b) Give the basic operations in IoT. 2

(c) Define CoAP. 2

(d) What is the purpose of actuators in IoT ? 2

(e) Define XaaS. 2

(f) Define the vision of IoT. 2

(g) What is MQTT ? 2

Unit I

2. (a) Discuss in detail Smart City application of IoT . 7

(b) Explain Architecture Reference Model of IOT using figure. 7

3. (a) Discuss in detail about how the IoT is applied in various applications. 7

(b) (i) Analyze the security challenges.

(ii) Explain the security risks. 7

Unit II

4. (a) Describe the following : 14

   (i) Zigbee Protocol

   (ii) RFID Technology

   (b) Explain the following :

   (i) Characteristics of IoT 7

   (ii) Wireless sensor networks 7

5. (a) Illustrate Programming Raspberry Pi with Python with Examples. 7

   (b) How are the cloud related to IoT ? Explain. 7

Unit III

6. (a) Explain the components, advantages and disadvantages used in healthcare IoT with diagram. 7

   (b) What is IoT ? Explain the sequence of technological developments leading to the shaping of the modern IoT. 7

7. (a) Explain the components used in agriculture and transportation IoT with diagram. 7

(b) Explain IoT Communication Models. 7

Unit IV

8. (a) Differentiate M2M and IoT. 7

(b) Discuss the need of IoT security management system. 7

9. (a) Risk and challenges in IoT. 7

(b) What are the components of IoT ? 7