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BT–8/M-24 48310

INTERNET OF THINGS

Paper–ECP–22A

Time Allowed : 3 Hours] [Maximum Marks : 75

Note : Attempt **five** questions in all, selecting at least **one** question from each Unit. All questions carry equal marks.

UNIT–I

1. (a) Explain the concept of Machine-to-Machine (M2M) communication and its significance in IoT.

   (b) What are the privacy and security concerns associated with IoT in healthcare, and how can they be addressed?

2. (a) How does IoT contribute to the concept of smart cities and urban planning?

   (b) What is Software-Defined Networking (SDN)? Explain the key components of an SDN infrastructure and their roles in Network Management.

UNIT–II

3. (a) What wireless communication protocols are commonly used in IoT weather monitoring? How does IoT

support real-time data transmission and what challenges does it address in weather monitoring?

(b) Describe the process of connecting and reading data from sensors using a Raspberry Pi.

4. (a) How are IoT sensors powered, and what are the considerations for Power Management in battery-operated Sensors?

(b) How does an Arduino board interact with various sensors and actuators in Electronic projects?

UNIT–III

5. (a) How does cloud computing facilitate scalability and resource allocation?

(b) What challenges do IoT devices face when using IPv4 addresses? Explain the advantages of IPv6 in terms of security for IoT devices and Networks.

6. (a) How does fog computing address latency and bandwidth challenges in distributed systems?

(b) What considerations should IoT manufacturers and service providers take into account to ensure compliance with privacy regulations? Discuss.

UNIT–IV

7. (a) Describe the process of defining and using functions in Python.

(b) What is a dictionary in Python, and how is it structured? How do you add, access, and modify key-value pairs in a Python dictionary?

8. (a) How can Python be used to interact with sensors and actuators in IoT projects?

(b) What are the privacy and security concerns associated with IoT in healthcare, and how can they be addressed?