PAPER ID-411361

Subject Code: MTEC031

Roll No: | | | | | | | | | | | | | |

MTECH
(SEM II) THEORY EXAMINATION 2023-24
INTERNET OF THINGS

TIME: 3 HRS **M.MARKS: 70**

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

a.	Define the Internet of Things (IoT).
b.	Explain the role of big data and analytics in IoT.
c.	What are the various elements of an IoT Architecture?
d.	Write down strategies employed to reduce power consumption in WSN.
e.	Discuss potential security vulnerabilities in WiFi networks.
f.	Describe some proprietary wireless technologies used in IoT applications.
g.	Explain the key components involved in IoT device programming.

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

a.	Explain the key components of an IoT system, including sensors, actuators, connectivity, data processing, and user interfaces
b.	Discuss the importance of low latency and real-time processing in IoT applications. How do these requirements influence the architectural design of IoT systems?
c.	Define centralized and distributed MAC protocols. Provide examples of each and discuss their advantages and disadvantages in WSN.
d.	Explain the different versions of the IEEE 802.11 standard and their implications for IoT.
e.	Discuss the importance of prototyping, testing, and iterative development in the IoT application development process.

SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7

a.	Discuss the applications of IoT in healthcare and Smart Cities.
b.	Discuss the potential benefits and risks of IoT for different sectors of society, including individuals, businesses, and governments.

4. Attempt any *one* part of the following: 7 x 1 = 7

a.	Describe the three-layer architecture of IoT. Explain the roles and functions of each layer (Perception Layer, Network Layer, Application Layer).
b.	Explain the concept of Internet of Things (IoT) architecture. How does IoT architecture differ from traditional network architectures?

5. Attempt any *one* part of the following: 7 x 1 = 7

a.	Discuss the typical components of a WSN and the roles they play in data collection and transmission.
b.	Describe some of the state-of-the-art MAC layer protocols specifically designed for power efficiency in WSNs.

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6. Attempt any *one* part of the following: 7 x 1 = 7

a.	Write a short note on (a) 6LoWPAN (b) ZigBee/ZigBee Smart
b.	Explain the principles of Ultra-Wideband (UWB) technology and its use in IoT applications.

7. Attempt any *one* part of the following: 7 x 1 = 7

a.	Explain the role of sensors, data aggregation, and cloud computing in this framework. Provide examples of how data-driven decision making enhances IoT applications in various industries.
b.	Describe the role of business intelligence (BI) and artificial intelligence (AI) in IoT with example.