USN ☐☐☐☐☐☐☐☐☐☐   **18CS81**
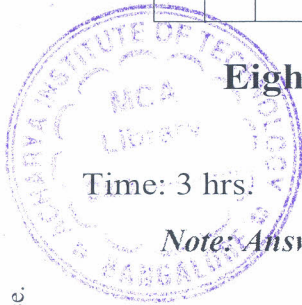
Eighth Semester B.E. Degree Examination, June/July 2025
Internet of Things

Time: 3 hrs.   Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1	a.	What is IoT? Explain in detail Genesis of IoT. **(06 Marks)**
	b.	Explain One M2M IoT architecture with a neat diagram. **(08 Marks)**
	c.	Compare and contrast IT and OT. **(06 Marks)**

OR

2	a.	With a neat diagram, explain the IoTWF standardized architecture. **(08 Marks)**
	b.	With neat diagram, list and explain the defining characteristics of Fog computing. **(08 Marks)**
	c.	Explain the functionality of IoT Network Management sublayer. **(04 Marks)**

Module-2

3	a.	Explain IEEE 802.15.4 physical layer, MAC layer and security layer with neat diagrams. **(10 Marks)**
	b.	With a neat diagram, explain how actuators and sensor interact with physical world. Classify actuators based on energy type. **(10 Marks)**

OR

4	a.	Explain in detail LoRaWAN architecture and LoRaWAN security implementation with neat diagram. **(10 Marks)**
	b.	Briefly describe about communication criteria to be considered in connecting smart objects. **(06 Marks)**
	c.	Explain the High Level Zigbee Protocol Stack with a neat diagram. **(04 Marks)**

Module-3

5	a.	Explain the key advantages of IP suite for IoT. **(08 Marks)**
	b.	Explain 6TiSCH in detail with a neat diagram. **(08 Marks)**
	c.	Briefly describe the need for optimization at various layers of IP stack to handle restrictions that are present in IoT networks. **(04 Marks)**

OR

6	a.	Explain CoAP IoT application layer protocol with a neat diagram. **(10 Marks)**
	b.	Explain MQTT frame work and MQTT message format with neat diagrams. **(10 Marks)**

Module-4

7	a.	Explain different components of FNF architecture. **(08 Marks)**
	b.	Explain Lambda architecture with a neat diagram. **(06 Marks)**
	c.	Discuss the concept of Neural network in machine learning with an example. **(06 Marks)**

OR

8   a.   Explain the different steps and phases of OCTAVE Allegro Methodology.   **(10 Marks)**
    b.   Explain Purdue Model for control hierarchy with a neat diagram.   **(10 Marks)**

Module-5

9   a.   Explain the layout of Raspberry Pi learning board with a neat diagram.   **(10 Marks)**
    b.   Explain the different layers of Smart City IoT architecture with a neat diagram.   **(10 Marks)**

OR

10   a.   Write a short note on Raspberry Pi OS.   **(06 Marks)**
     b.   Write a short note on Arduino UNO.   **(04 Marks)**
     c.   Explain Smart Parking Architecture with a neat diagram.   **(10 Marks)**

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