CBCS SCHEME

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18CS81

C.M.R. INSTITUTE OF TECHNOLOGY CMR BANGALORE

Eighth Semester B.E. Degree Examination, Dec.2025/Jan.2026
Internet of Things

Time: 3 hrs. Max. Marks: 100

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

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-1

1 a. Define Internet of Things, explain evolutionary phases of the Internet. **(06 Marks)**
b. Compare IT and OT networks with different criterion. **(08 Marks)**
c. Explain different challenges faced by IoT. **(06 Marks)**

OR

2 a. Explain IoTWF standardized architecture with a neat diagram. **(10 Marks)**
b. Explain IoT Data management and compute stack comparing with traditional IT cloud computing model with the help of necessary diagrams. **(10 Marks)**

Module-2

3 a. List and explain different types of sensors with an example for each. **(10 Marks)**
b. Explain the classification of actuators. **(06 Marks)**
c. Explain the trends in smart objects. **(04 Marks)**

OR

4 a. Explain IEEE 802.15.4 PHY format and MAC format with the help of diagrams. **(10 Marks)**
b. Describe the following communication criteria
i) Topology ii) Range **(10 Marks)**

Module-3

5 a. Explain the key advantages of IP protocol. **(08 Marks)**
b. Explain in detail the 6LoWPAN with a neat diagram. **(08 Marks)**
c. Compare Adoption and Adaptation of the IP protocol. **(04 Marks)**

OR

6 a. Explain the following :
i) Adapting the SCADA for IP
ii) Tunneling Legacy SCADA over IP networks **(10 Marks)**

b. Explain MQTT protocol with its message format and message types. **(10 Marks)**

Module-4

7 a. Explain different types of data analytics results with examples. **(06 Marks)**
b. Explain the massively parallel processing databases and NoSQL databases. **(08 Marks)**
c. Describe Lamda architecture with a neat diagram. **(06 Marks)**

OR

8 a. Explain edge analytics core functions with the necessary diagrams. **(10 Marks)**
b. Explain the Purdue Model for control hierarchy. **(10 Marks)**

Module-5

9 a. Explain the Arduino UNO with a net diagram. **(10 Marks)**
b. Explain Raspberry Pi Learning board with a neat diagram. **(10 Marks)**

OR

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10 a. Explain the smart city security architecture with a neat diagram. **(10 Marks)**
b. Explain IoT strategy for smarts cities. **(10 Marks)**

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