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**MCA**  
**(SEM IV) THEORY EXAMINATION 2024-25**  
**INTERNET OF THINGS**

**TIME: 3 HRS****M.MARKS: 100****Note:** Attempt all Sections. In case of any missing data; choose suitably.**SECTION A****1. Attempt all questions in brief. 2 x 10 = 20**

Q No.	Question	CO	Level
a.	What do you mean by Internet of Things?	1	K1
b.	Explain the purpose of a wireless sensor network (WSN)?	2	K2
c.	What do you mean by actuators?	2	K1
d.	Differentiate between IoT & MoM?	1	K2
e.	Explain the role of RFID in IoT?	2	K2
f.	What do you understand by embedded platform of IoT?	2	K2
g.	List two communication technologies used in IoT.	1	K1
h.	What is data aggregation?	3	K2
i.	Discuss security challenges of IoT?	5	K2
j.	Differentiate between IIoT and IoT?	1	K2

**SECTION B****2. Attempt any three of the following: 10 x 3 = 30**

Q No.	Question	CO	Level
a.	Explain major components of IoT system?	1	K2
b.	Explain the NFC and RFID technology?	2	K2
c.	Explain sensor deployment and node discovery techniques in IoT. Why are they important?	3	K2
d.	Explain the steps involved in programming an Arduino board for an IoT application, including writing, uploading, and testing code?	4	K2
e.	Describe the end-to-end design of an IoT-based home automation system?	5	K3

**SECTION C****3. Attempt any one part of the following: 10 x 1 = 10**

Q No.	Question	CO	Level
a.	Explain the architectural view and conceptual framework of IoT. Also, discuss the technology behind IoT and the role of M2M (Machine-to-Machine) communication in enabling IoT systems?	1	K3
b.	Explain the design principles of connected devices and IoT system layers with examples?	1	K3

**4. Attempt any one part of the following: 10 x 1 = 10**

Q No.	Question	CO	Level
a.	Describe the role of sensors and actuators in IoT systems. Explain five types of sensors along with their uses?	2	K2
b.	Compare embedded platforms (Arduino, Raspberry Pi, BeagleBone) used in IoT applications?	2	K4



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**5. Attempt any one part of the following: 10 x 1 = 10**

Q No.	Question	CO	Level
a.	Analyze data aggregation and dissemination techniques in IoT communication networks?	3	K4
b.	Explain the wireless medium access issues and analyze the role of MAC protocols in IoT communication networks?	3	K4

**6. Attempt any one part of the following: 10 x 1 = 10**

Q No.	Question	CO	Level
a.	Draw and describe Arduino board and its components in detail?	4	K2
b.	Write a program to detect the temperature using temperature sensor with the connection diagram?	4	K3

**7. Attempt any one part of the following: 10 x 1 = 10**

Q No.	Question	CO	Level
a.	Describe the design and working of smart streetlights in a smart city using IoT.	5	K3
b.	Discuss the major security and development challenges in IoT in detail?	5	K2