



## Avinashilingam Institute for Home Science and Higher Education for Women

Deemed to be University Estd. u/s 3 of UGC Act 1956, Category A by MHRD (now MoE)

Re-accredited with 'A++' Grade by NAAC. CGPA 3.65/4, Category I by UGC

Coimbatore - 641 043, Tamil Nadu, India

### Master's Degree Examination – May 2025

#### II Semester

Class : I P.G.  
Major : Information Technology

Time: 3 Hours  
Max. Marks: 100

#### 23MITC07 Internet of Things

##### Course Outcomes:

CO1: Interpret the fundamental functionalities of IoT and enabling technologies

CO2: Understand the significance of sensors and microcontrollers.

CO3: Gain knowledge about the protocols of IoT.

CO4: Identify the importance of Cloud for IoT.

CO5: Integrate real world day-to-day applications with IoT systems.

#### Part A

10 x 1 = 10

#### Choose the Correct Answer

1. The characteristic of IoT that ensures smooth communication between devices is CO1K1
  - a. Scalability
  - b. Interoperability
  - c. Manual Processing
  - d. Security
2. The primary function of a microcontroller in IoT is CO2K2
  - a. Providing computing power
  - b. Storing large amounts of data
  - c. Acting as a database server
  - d. Transmitting cellular signals
3. The protocol designed for lightweight IoT communication is CO3K1
  - a. MQTT
  - b. HTTP
  - c. FTP
  - d. SMTP
4. The term "**Fog Computing**" in IoT refers to CO4K2
  - a. Computing done in data centers
  - b. Processing at the network edge
  - c. Storing data in a personal computer
  - d. Wireless communication using radio waves
5. The sensor commonly used in elderly fall detection systems is CO5K1
  - a. Temperature Sensor
  - b. Accelerometer
  - c. Gas Sensor
  - d. Light Sensor
6. The number of bits allocated for addressing in the **IPV6 Protocol Frame Format** is CO3K1
  - a. 16
  - b. 32
  - c. 64
  - d. 128
7. The cloud service model suitable for application hosting in IoT is CO4K2
  - a. IaaS
  - b. PaaS
  - c. SaaS
  - d. FaaS
8. The technology used for short-range IoT communication is CO3K2
  - a. Li-Fi
  - b. WiMAX
  - c. Satellite Communication
  - d. Fiber Optics
9. The function of **Uniform Resource Identifier (URI)** in IoT is CO3K2
  - a. Identifying devices uniquely
  - b. Storing IoT data
  - c. Encrypting data transmission
  - d. Maintaining IP addresses
10. The IoT application used for monitoring **water quality** is CO5K1
  - a. Smart Agriculture
  - b. Smart Healthcare
  - c. Environmental Monitoring
  - d. Smart Grid

**Part B**

**5 x 6 = 30**

**Answer ALL questions**

**Each answer should not exceed 400 words or two pages**

- 11.a. Explain different levels of IoT with examples. CO1K2  
(or)  
11.b. Discuss on the key challenges in IoT deployment CO1K2
- 12.a. Describe the sensor types used in IoT applications CO2K3  
(or)  
12.b. Write about the Working principle of an **8051 microcontroller** in IoT applications. CO2K3
- 13.a. Write about Working process and advantages of **MQTT** protocol in IoT. CO3K3  
(or)  
13.b. Compare between **IPv4** and **IPv6** addressing schemes used in IoT. CO3K3
- 14.a. Discuss on security aspects of **cloud computing** in IoT. CO4K2  
(or)  
14.b. Explain the benefits and challenges of using **Fog Computing** in IoT. CO4K2
- 15.a. Elaborate on the Role of IoT in Smart Retail applications. CO5K3  
(or)  
15.b. Discuss in detail of Functioning of IoT-based **Smart Driver Assistance Systems** CO5K3

**Part C**

**5 x 12 = 60**

**Answer ALL questions**

**Each answer should not exceed 800 words or four pages**

- 16.a. Demonstrate the **IoT Stack** and its components with a diagram. CO1K4  
(or)  
16.b. Define about **IoT growth**, its **applications**, and **enabling technologies**. CO1K4
- 17.a. Interpret on **sensor interfacing with microcontrollers** in IoT applications. CO2K3  
(or)  
17.b. Examine the Architecture and role of **ARM microcontrollers** in IoT. CO2K3
- 18.a. Compare **Bluetooth Low Energy (BLE)** and **Light Fidelity (Li-Fi)**. CO3K5  
(or)  
18.b. Clarify the role and significance of **Uniform Resource Identifier (URI)** In IoT communication. CO3K5
- 19.a. Highlight about the factors involved in selecting the **right cloud service provider** for IoT applications with examples. CO4K5  
(or)  
19.b. Provide details about the challenges associated with **integrating IoT with the cloud** and possible solutions. CO4K5
- 20.a. Explain the working and benefits of an IoT-based **Smart Healthcare Monitoring System**. CO5K6  
(or)  
20.b. Explain about the IoT-based **Water Quality Monitoring System**, Covering its components and benefits. CO5K6

\*\*\*\*\*