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Course Code

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Eighth Semester B.E. Degree Examinations, May 2026

IoT AND ITS APPLICATIONS

Duration: 3 hrs

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Missing data, if any, may be suitably assumed

<u>Q. No</u>	<u>Question</u>	<u>Marks</u>	<u>(RBTL:CO: PI)</u>
<u>Module-1</u>			
1.	a. Describe smart farming in IoT and explain its benefits in agriculture.	10	(2: 1: 1.2.1)
	b. Explain wireless ad-hoc networks and wireless sensor networks in IoT.	10	(2: 1: 1.2.1)
(OR)			
2.	a. Describe the application layer and explain HTTP and AMQP protocols used in IoT.	10	(2: 1: 1.2.1)
	b. Briefly explain the followings: (i) IEEE 802.11 (ii) IEEE 802.12 (iii) TCP (iv) UDP	10	(2: 1: 1.2.1)
<u>Module-2</u>			
3.	a. Explain the architecture of IP-based IoT and describe the role of each layer in the communication process.	10	(2: 2: 1.2.1)
	b. Describe Low-Power Wi-Fi, Bluetooth, and Bluetooth Low Energy (BLE) technologies used in IoT communication.	10	(2: 2: 1.2.1)
(OR)			
4.	a. Explain the components of MQTT and describe the role of broker, publisher, and subscriber in IoT communication.	10	(2: 2: 1.2.1)
	b. Describe HTTP and CoAP proxying and explain how it enables communication between IoT devices and web services. And Compare HTTP and CoAP protocols in IoT.	10	(2: 2: 1.2.1)
<u>Module-3</u>			
5.	a. Explain scalar sensors and vector sensors with their working principles and applications in IoT systems.	10	(2: 3: 1.2.1)
	b. Explain the static and dynamic characteristics of sensors with an example.	10	(2: 3: 1.2.1)
(OR)			
6.	a. Explain multi-hop communication in WSN and its importance.	10	(2: 3: 1.2.1)
	b. Describe the need for sensors in modern IoT applications and its types.	10	(2: 3: 1.2.1)
<u>Module-4</u>			
7.	a. Explain different data types in Arduino with an examples.	07	(2: 4: 1.2.1)
	b. Describe arithmetic, relational, and logical operators in Arduino.	07	(2: 4: 1.2.1)
	c. Explain how smart lightning can be incorporated using Arduino with code.	06	(2: 4: 1.2.1)
(OR)			

Note: (RBTL - Revised Bloom's Taxonomy Level: CO - Course Outcome: PI- Performance Indicator)

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|----|----|---|----|---------------|
| 8. | a. | Describe data types in Python with examples. | 07 | (2: 4: 1.2.1) |
| | b. | Explain the exception handling in Python programming with an example. | 07 | (2: 4: 1.2.1) |
| | c. | Explain temperature monitoring system using python programming. | 06 | (2: 4: 1.2.1) |

Module-5

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| 9. | a. | Explain cloud computing service models with block diagram. | 10 | (2: 5: 1.2.1) |
| | b. | Explain the IOT component in agriculture chain. | 10 | (2: 5: 1.2.1) |

(OR)

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|-----|----|---|----|---------------|
| 10. | a. | Explain sensor cloud in IOT system. | 10 | (2: 5: 1.2.1) |
| | b. | Differentiate between:
(i) Sensor cloud vs VSN (ii) Cloud computing and Fog computing. | 10 | (2: 5: 1.2.1) |

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