Reg No.:_____ Name:_____

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

B.Tech Degree 7th semester (S,FE) Exam April 2025 (2019 Scheme)

**Course Code: ECT445**

**Course Name: IOT AND APPLICATIONS**

**Max. Marks: 100** **Duration: 3 Hours**

**PART A**

***Answer all questions, each carries 3 marks.*** Marks

| | | | |
|---|---|---|---|
| 1 | | **What are different IoT functional blocks?** | (3) |
| 2 | | **Discuss various IoT-enabling technologies.** | (3) |
| 3 | | **Differentiate between sensors and actuators.** | (3) |
| 4 | | **Discuss various communication protocols for wireless sensor networks.** | (3) |
| 5 | | **Discuss the features of NB-IoT.** | (3) |
| 6 | | **What is 6LoWPAN? Explain.** | (3) |
| 7 | | **What are the different cloud service models? Explain.** | (3) |
| 8 | | **What is XIVELY? Explain.** | (3) |
| 9 | | **Discuss about IoT security requirements.** | (3) |
| 10 | | **Explain IoT security tomography.** | (3) |

**PART B**

***Answer any one full question from each module, each carries 14 marks.***

**Module I**

| | | | |
|---|---|---|---|
| 11 | a) | **With necessary diagrams explain different IoT deployment models.** | (14) |

**OR**

| | | | |
|---|---|---|---|
| 12 | a) | **Describe the physical and logical design of IoT.** | (14) |

**Module II**

| | | | |
|---|---|---|---|
| 13 | a) | **Differentiate between SDN and NFV for IoT.** | (8) |
| | b) | **What are the differences in communication between IoT devices and M2M devices?** | (6) |

**OR**

| | | | |
|---|---|---|---|
| 14 | a) | **Draw the block schematic of a smart IoT object and elaborate. What are the trends in the features of a smart object?** | (8) |
| | b) | **Describe the classification of sensor devices with examples** | (6) |

**Module III**

| | | | |
|---|---|---|---|
| 15 | a) | **Draw Zigbee architecture and explain.** | (8) |
| | b) | **How does Zigbee IP differ from Zigbee?** | (6) |

**OR**

| | | | |
|---|---|---|---|
| 16 | a) | **With necessary diagrams, explain LoRaWAN architecture.** | (8) |
| | b) | **Discuss about LoRaWAN standardization and alliances.** | (6) |

**Module IV**

| | | | |
|---|---|---|---|
| 17 | a) | **What are the features and characteristics of IoT cloud platforms?** | (8) |
| | b) | **Explain NIMBITS** | (6) |

**OR**

| | | | |
|---|---|---|---|
| 18 | a) | **Draw the block schematic of Raspberry Pi board and explain the different parts.** | (8) |
| | b) | **Discuss about Raspberry Pi interfaces.** | (6) |

**Module V**

| | | | |
|---|---|---|---|
| 19 | a) | **What are the different IoT vulnerabilities? Discuss the layered attacker model** | (8) |
| | b) | **Discuss about secure message communication.** | (6) |

**OR**

| | | | |
|---|---|---|---|
| 20 | a) | **Draw IoT smart city architecture and explain.** | (8) |
| | b) | **Explain how IoT can be used for the smart management of city traffic.** | (6) |

****