

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
B.Tech Degree S7 (R,S) Examination November 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 | Describe any three key characteristics of IoT. | (3) |
| 2 | What is the difference between the push and pull communication models in IoT? | (3) |
| 3 | Explain wireless sensor network. | (3) |
| 4 | What are smart objects in the context of IoT? | (3) |
| 5 | Define LTE-M and NB-IoT | (3) |
| 6 | How does RPL support routing in low-power and lossy networks? | (3) |
| 7 | Explain about the Cloud based platforms-XIVELY, NIMBITS | (3) |
| 8 | How can you apply the cloud computing paradigm to manage large-scale IoT data? | (3) |
| 9 | Describe a method to ensure data privacy in IoT communications. | (3) |
| 10 | How can IoT be used to monitor and manage parking in cities ? | (3) |

PART B

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

Module I

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|----|---|-----|
| 11 | a) Explain any Two Levels of IoT Deployment | (6) |
| | b) Interpret different communication models used in IoT | (8) |

OR

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|----|--|-----|
| 12 | a) Identify the IoT Functional blocks and explain. | (6) |
| | b) Illustrate various protocols of link layer, network layer, transport layer and application layer of IOT | (8) |

Module II

- | | | |
|----|--|-----|
| 13 | a) Compare and Contrast on IoT and M2M. | (6) |
| | b) Interpret the issues of conventional networking architectures? How is it solved in SDN? | (8) |

OR

- 14 a) Describe the function of a sensor and actuators in IoT? (6)
b) Define how NFV will result in reducing the complexity of an IOT Network (8)

Module III

- 15 a) Explain LoraWAN architecture. Give a detailed description of the physical layer and MAC layer of LoraWAN (8)
b) Write a short note on Zigbee IP Protocol (6)

OR

- 16 a) Elaborate the 6LoWPAN adaptation layer (6)
b) How does 6LoWPAN enable IPv6 communication over low-power wireless networks? (8)

Module IV

- 17 a) Extend cloud based data collection, storage and computing services provided by XIVELY cloud platform. (8)
b) Illustrate the considerations for choosing a public cloud deployment model for IoT? (6)

OR

- 18 a) List out and explain different types cloud computing models. (6)
b) With a neat sketch, elaborate the various cloud deployment models. (8)

Module V

- 19 a) Explain How would you implement identity management to secure IoT devices in a smart city infrastructure? (6)
b) How can IoT be used to monitor and manage air pollution in urban areas? (8)

OR

- 20 a) Develop an IoT strategy for improving street lighting in a smart city? (8)
b) How can the layered attacker model be applied to enhance the security of an IoT system? (6)
