

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
Eighth Semester B.Tech Degree Regular Examination June 2023 (2019 Scheme)

**Course Code: ECT458**

**Course Name: INTERNET OF THINGS**

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

**PART A**

*Answer all questions, each carries 3 marks.*

		Marks
1	Explain what do you mean by logical design of IoT. What does it include?	(3)
2	Explain the IoT enabling technologies	(3)
3	Define Sensors, Actuators, and Smart Objects	(3)
4	List the differences between IoT and M2M.	(3)
5	Explain the features of modbus	(3)
6	Explain the significance of 6LoWPAN Adaptation Layer	(3)
7	List different Cloud Deployment Models	(3)
8	What is an IoT Device? Give an example.	(3)
9	Define message integrity? How it is checked?	(3)
10	Explain the three users that IoT applications must support through aggregated data in smart parking.	(3)

**PART B**

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

**Module I**

- 11 a) Define IoT. Explain the different characteristics of IoT. (7)
- b) Explain with figure Level-5 IoT system. Give an example (7)

**OR**

- 12 a) Explain different communication models used in IoT. (8)
- b) Explain with figure the architectural view of IoT (6)

**Module II**

- 13 a) Explain the issues of conventional networking architectures? How is it solved in SDN? (7)
- b) Explain with figure Network Function Virtualization use case for IoT. (7)

**OR**

- 14 a) What are smart objects? What are their defining characteristics and the trends? (9)  
b) Explain the limitations of smart objects in WSNs. (5)

**Module III**

- 15 a) Explain IEEE 802.15.4 physical layer, MAC layer and security implementation with the help of frame formats. (8)  
b) Explain what are network layer the next generation IP-based protocols used in IoT. (6)

**OR**

- 16 a) Explain how RPL provides the routing solution for IP smart objects in IoT (5)  
b) Explain LoraWAN architecture. Give a detailed description of the physical layer and MAC layer of LoraWAN (9)

**Module IV**

- 17 a) List the usages of virtualisation functions for data store, networks and servers (6)  
b) Describe cloud computing service models in a software architectural concept, everything as a service (8)

**OR**

- 18 a) Explain the features of Raspberry Pi (7)  
b) Explain an IoT Device. Draw basic building blocks of an IoT Device (7)

**Module V**

- 19 a) Illustrate with figure the functions of a security function group in functional view of IoT reference architecture. (9)  
b) List the top ten vulnerabilities for attack. (5)

**OR**

- 20 a) Explain with diagram the 4-layer smart city architecture (8)  
b) Demonstrate street lighting architecture in smart cities with the help of a diagram (6)

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