

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Eighth Semester B.Tech Degree Regular Examination June 2023 (2019 Scheme)

Course Code: CST448**Course Name: INTERNET OF THINGS****Max. Marks: 100****Duration: 3 Hours****PART A***Answer all questions, each carries 3 marks.*

Marks

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| 1 | Describe the functions of various layers of simplified IoT architecture model. | (3) |
| 2 | Discuss the evolutionary phase of internet. | (3) |
| 3 | List any three types of actuators classified by energy types with examples. | (3) |
| 4 | Describe Micro–Electro–Mechanical Systems (MEMS). | (3) |
| 5 | List and explain any three main industry organizations working on profile definitions and certifications for IoT constrained nodes and networks. | (3) |
| 6 | With neat diagram compare the IoT protocols using 6 LoWPAN and IP. | (3) |
| 7 | Describe any three types of data analysis results. | (3) |
| 8 | With a neat diagram describe distributed analytics throughout the IoT systems. | (3) |
| 9 | Write a python program for switching LED/Light based on LDR reading. | (3) |
| 10 | Describe any three single board mini computers which can be used as alternative for Raspberry Pi. | (3) |

PART B*Answer any one full question from each module, each carries 14 marks.***Module I**

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| 11 | a) Explain the challenges of IoT. | (5) |
| | b) Illustrate the impact of IoT in at least 2 domains of everyday lives of human life. | (9) |

OR

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| 12 | a) Differentiate between OT and IT technology. | (6) |
| | b) Describe the standardized IoT architectures. | (8) |

Module II

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| 13 | a) Describe any two communication criteria which are to be considered when selecting and dealing with connecting smart objects. | (6) |
| | b) Explain the IEEE 802.15.4 standard for wireless communication. | (8) |

OR

- 14 a) List and explain the trends in smart objects (5)
- b) Describe the LoRaWAN as an IoT Communication paradigm. (9)

Module III

- 15 a) Explain the different schedule management and packet forwarding models of 6TiSCH. (7)
- b) Explain MQTT Publish/Subscribe Framework and MQTT Message Format. (7)

OR

- 16 a) Explain SCADA transport over LLNs with MAP-T (7)
- b) Explain CoAP message format and CoAP communications in IoT infrastructures. (7)

Module IV

- 17 a) Discuss the common challenges in OT security. (6)
- b) Describe the logical framework based on the Purdue model for control hierarchy and OT network characteristics. (8)

OR

- 18 a) Explain the Flexible NetFlow architecture. (7)
- b) Explain any two formal network risk analysis structures (7)

Module V

- 19 a) List and explain the various components/peripherals of Raspberry pi board. (6)
- b) Demonstrate an example of Raspberry Pi applications for industrial IoT. (8)

OR

- 20 a) Describe how AWS support IoT development. (6)
- b) Explain the working of WAMP protocol. (8)
