SRM Institute of Science and Technology

College of Engineering and Technology

School of Computing

DEPARTMENT OF NETWORKING AND COMMUNICATIONS

SRM Nagar, Kattankulathur – 603203, Chengalpattu District, Tamilnadu

Academic Year: 2022-2023

**Test: CLAT-3 Date: 5.05.2023**

**Course Code & Title: 18CSE448T: Energy Management for IoT devices**

**Duration: 2 Periods**

**Year & Sem: III & VI Max. Marks: 50 Marks**

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|  | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
| CO1 | *H* | *M* | *M* | *M* | *-* | *-* | *-* | *-* | *-* | *-* | *-* | - | *-* | *-* | *-* |
| C02 | *H* | *M* | *M* | *-* | *-* | *-* | *-* | *-* | *-* | *-* | *-* | - | *-* | *-* | *-* |
| CO3 | *H* | *H* | *H* | *H* | *-* | *-* | *-* | *-* | *-* | *-* | *-* | - | *-* | *-* | *-* |
| CO4 | *H* | *M* | *H* | *H* | *-* | *-* | *-* | *-* | *-* | *-* | *-* | M | *-* | *-* | *-* |
| CO5 | *H* | *H* | *H* | *H* | *-* | *-* | *-* | *-* | *-* | *-* | *-* | M | *-* | *-* | *-* |
| CO6 | *H* | *M* | *M* | *M* | *-* | *-* | *-* | *-* | *-* | *-* | *-* | *-* | *-* | *-* | *-* |

3-High, 2- Medium, 1-low

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| **Part - A**  **(10 x 1 = 10 Marks) Instructions: Answer all** | | | | | | | | | | | |
| Question | | Marks | | BL | | CO | PO | | | PI Code | |
| 1. In smart metering \_\_\_\_\_\_\_\_ network, connects multiple homes through a single data aggregator unit 2. Neighborhood area network 3. Home area network 4. Wide area network 5. Duty Cycling | | 1 | | 1 | | 2 | 1 | | | 1.6.1 | |
| 1. The \_\_\_\_\_\_\_\_\_\_ framework is used to enhance sensor cloud network by the addition of the cloud services 2. Sensory data processing framework 3. Sensory network framework 4. Cloud data processing framework 5. Data processing framework | | 1 | | 1 | | 2 | 1 | | | 1.3.1 | |
| 1. Which of the following device is used to measure the gas or liquid? 2. Optical sensors 3. Gas sensors 4. Smoke Sensor 5. Pressure Sensor | | 1 | | 1 | | 2 | 1 | | | 1.6.1 | |
| 1. \_\_\_\_\_\_\_\_\_ is a rapidly growing field that combines the power of IoT technology with sustainable and environmentally friendly practices 2. IIoT 3. Green IoT 4. Machine-to-machine Communication 5. Genetic Algorithm | | 1 | | 1 | | 2 | 1 | | | 1.6.1 | |
| 1. Which of the following techniques are leading to the implementation of green IoT 2. Smart Metering 3. Smart Sensors and smart Metering 4. Smart Sensors and electric devices 5. smart Metering and electric devices | | 1 | | 1 | | 2 | 1 | | | 1.3.1 | |
| 1. \_\_\_\_\_\_\_\_\_\_\_\_ have advantage of easy installation and maintenance though, often needing higher operational cost 2. Non-intrusive transducers 3. Intrusive transducers 4. Non-intrusive Sensors 5. Intrusive sensors | | 1 | | 1 | | 3 | 1 | | | 2.6.4 | |
| 1. Why synchronization between various uplink and down link messages slots for different messages in the transmission queue to important? 2. Temporary buffer centralization 3. To avoid disruption in transmission 4. To introduce disruption in transmission 5. Temporary buffer de-centralization | | 1 | | 1 | | 3 | 1 | | | 2.6.4 | |
| 1. The frequency time division for bandwidth allocation for physical transmission channel known as\_\_\_\_\_\_\_\_\_\_\_\_. 2. Physical random access channel(PRACH) 3. Evolved node-B(eNB) 4. Orthogonal frequency division multiple access(OFDMA) 5. Single carrier frequency division multiple access(SC-FDMA) | | 1 | | 1 | | 3 | 1 | | | 1.7.1 | |
| 1. Which of the following technique provides a trust-based secure communication platform, allows exchange of information in a secure way   a) Cooperative automated vehicle  b) Internet of vehicle  c) Intra-vehicle network  d) Automated Vehicle | | 1 | | 1 | | 3 | 1 | | | 1.7.1 | |
| 10. In ITS technology strata, \_\_\_\_\_\_ layer fills the gap between sensing technology, activation process and the computational and information processing levels.  a**)** Communication Layer  b) Perceptron Layer  c) Transport Layer  d) Network Layer | | 1 | | 1 | | 3 | 1 | | | 2.6.4 | |
| **Part – B**  **(5 x 2 = 10 Marks) Instructions: Answer any 5** | | | | | | | | | | |
| 1. | Write about the different approaches for achieving Green IoT | 2 | 1 | | 1 | | | 1 | 1.6.1 | |
| 2. | What are the benefits of energy-efficient smart health care system? | 2 | 2 | | 1 | | | 1 | 2.6.4 | |
| 3. | Discuss promoting the Usage of Sensor Cloud. | 2 | 2 | | 2 | | | 2 | 1.6.1 | |
| 4. | Discuss the Bluetooth low energy(BLE) importance in IoT | 2 | 1 | | 2 | | | 2 | 2.6.4 | |
| 5. | How duty cycling could be done for energy optimization? | 2 | 2 | | 3 | | | 2 | 2.6.4 | |
| 6. | List out the motivations for IoT in Transportation | 2 | 3 | | 3 | | | 2 | 1.7.1 | |

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| Part – C (2 x 15 = 30 Marks) | | | | | | |
| 1. | If I wanted to create awareness of their energy usage and current energy need to the users, what are the techniques are the best suitable one. | 15 | 2 | 2 | 2 | 2.6.4 |
|  | (OR) |  |  |  |  |  |
| 2. | Describe in detail about the Green IoT and its techniques | 15 | 2 | 2 | 1 | 1.6.1 |
| 3. | Explain about the intelligent transport systems | 15 | 2 | 3 | 1 | 2.6.4 |
|  | (OR) |  |  |  |  |  |
| 4. | Describe the motivation for vehicle to everything (V2X) and V2G technology. | 15 | 4 | 3 | 2 | 1.7.1 |

Approved by the Audit Professor/Course Coordinator