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**Sub Code/Name: 18CSE448T-Energy Management for Internet of Things Devices**

**Question Bank**

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|  | **UNIT-1** |  |  |  |  |
|  | 1. Define IoT 2. Sketch the Architecture of IoT 3. Illustrate the components of IoT 4. Discuss the challenges in IoT 5. Explain various ambient energies 6. Discuss different energy harvesting systems in IoT 7. Explain Rectenna model 8. Write the advantages and disadvantages of energy harvesting systems 9. Write the applications of IoT systems 10. Explain in detail about wireless energy harvesting 11. Explain in detail Industry IoT architecture model for energy efficient system. 12. Explain near field communication and inductive coupling.   **UNIT-2**  1. Describe the different energy conservation schemes.  2. Explain sleep and wakeup schemes in energy conservation methods  3. Explain data driven scheme with suitable example  4. Write about the case study done on energy conservation component for smart home  5. State the working process of load balancing scheme  6. Explain briefly about hardware-based load balancing scheme 7. Compare hardware and software-based load balancing techniques  8. List different energy conservation scheme in IoT based smarthome system  9. Discuss in detail various issues in energy conservation in IoT 10. Discuss in detail hardware and software-based load balancing in IoT  11. Sketch Smarthome system with different energy conservation components  12. Demonstrate the role of Automation and sensors in Smarthome system with neat sketch  **UNIT-3**  1. Describe Modified Best Fit Decreasing Algorithm (MBFD) with suitable example  2. Discuss First Fit Decreasing Algorithm (FFD) with suitable example  3. Explain about static energy efficient algorithms  4. Explain the role of Particle Swarm Optimization (PSO) in finding the fitness of particle in cloud.  5. Discuss the role of Cat Swarm Optimization (CSO) in finding the fitness of the nodes in the IoT system.  6. Describe how Ant Colony Optimization (ACO) helps to allocate and maintain cloud service.  7. State Simulated Annealing (SA) process with example  8. Explain in detail how genetic algorithms are used to optimise energy conservation.  9. Explain in detail how Ant colony Optimization (ACO) used to optimise energy conservation in IoT.  10. Interpret the steps of Hybrid Genetic Algorithm and Cat Swarm Optimization (HGACSO) in energy conservation.  11. Demonstrate the steps of Hybrid Genetic Algorithm, Particle Swarm Optimization and simulated annealing (HGAPSOSA) in energy conservation.  12. Compare and contrast static and dynamic energy efficient algorithm  **UNIT-4**  1. Discuss role of IoT in smarthome and smart cities  2. State the importance of Green IoT  3. Define IoT based Intelligent Transport System  4. Discuss the working process of IoT based Smart Metering  5. Explain briefly about Various Approaches to Achieve Green IoT  6. Compare hardware and software-based Green IoT techniques 7. List Comparative analysis of different green IoT approaches 8. Discuss in detail Communication Technology Creating Awareness About Green Information, Promoting Recycling  9. Discuss in detail Smart Homes, Smart Cities in IoT  10. Sketch the Usage of Sensor Cloud: a step toward green IoT 11. Write the impact of smart phones on the environment in present and future trends  12. Discuss in detail creating awareness of Green IoT based smart factories.  **UNIT-5**  1. Explain in detail communication technology role in intelligent Transport System  2. State the motivations for IoT in Transportation  3. Explain in detail intelligent Transport System with suitable example  4. Discuss the role of Electric vehicle in Energy saving  5. Discuss Electric Vehicles and Solar Power Plants in Smart Grid Environment  6. Describe weather monitoring using BLE technologies  7. State the importance of Bluetooth Low Energy with example 8. Explain in detail energy efficient IoT based Intelligent Transport System  9. Explain in detail role of IoT in Development of Electric and autonomous vehicles.  10. Interpret the Weather monitoring using Bluetooth Low Energy (BLE) in warehouses  11. Demonstrate the steps of Battery Management System, Grid Connection and Performance Testing of V2G  12. Explain in detail potential of EV to Grid connection. |  |  |  |  |
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