JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2024

M.Tech-II Semester (ECE-IoT)

COURSE CODE(CREDITS): 21M1WEC236 (3)   MAX. MARKS: 35

COURSE NAME: Smart Internet of Things

COURSE INSTRUCTORS: Dr. Shweta Pandit   MAX. TIME: 2 Hour

Note: (a)All questions are compulsory.
(b)Marks are indicated against each question in square brackets.
(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems.

Q1. Discuss about the smartness in various kinds of home appliances now-a-days. Elaborate on their operation through different kinds of sensors, actuators and communication technologies employed.   **[2.5+2.5][CO2]**

Q2. Provide the stepwise procedure and essential components to build a smart home. Name few technology enablers facilitating smart home components in the market.**[5+1][CO3]**

Q3. a. Discuss the smart heating and cooling operation with smart thermostats. How it is different from the conventional HVAC (heating, ventilations and air conditioning) systems?
                                                                           [3+2][CO3]
b. Differentiate between Zigbee and Z-wave technology.   **[1][CO1]**

Q4. Design a smart traffic management IoT based system using Raspberry Pi to monitor traffic flow, optimize traffic signals, and provide real-time traffic updates to commuters. Mention the methodology, components used, and pseudo code for its implementation.   **[6][CO4]**

Q5. Develop a system to monitor crop health using cameras and sensors, providing insights into pest infestations, nutrient deficiencies, and overall crop growth.   **[6][CO3]**

Q6. a) What do you understand by smart warehousing? How giant online retailers like Amazon and Flipkart do handle orders in their warehouses for timely completion of delivery? Give insights into various smart devices they utilize in their warehouses.   **[3][CO2]**
b) What is the concept of smart grid in smart city projects? In which way smart grid would be helpful?   **[3][CO2]**