

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2023

B.Tech-VII Semester (CSE-ECE Minor)

COURSE CODE(CREDITS):18B1WEC747

MAX. MARKS: 15

COURSE NAME: Internet of Things

COURSE INSTRUCTORS: Salman Talluri

MAX. TIME: 1 Hour

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*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*

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1. Calculate the path loss for the line of sight communication for a transmitter and receiver (sensor) separated by a distance of 2 Km at an operating frequency of 1 GHz. What are the methods to reduce the path loss? [3 m CO-1]
2. Twelve sensors are to be connected to a wireless sensor network (WSN) in only three frequency bands, Band-1, Band-2 and Band-3. Devise a scheme for this to utilize the resources of the (WSN) efficiently. Is it possible to get more than one solution for it? [3 m CO-1]
3. Differentiate between a sensor and actuator with the functional block diagrams/ [3m CO-2]
4. What are the essential elements present in an RFID system? Explain the functionality of each block present in it with an example [3 m CO-2]
5. Explain the need for energy harvesting primarily for IoT? What are the two different ways for harvesting energy? [3 m CO-2]