

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2025

PhD-II Semester (ECE)

COURSE CODE (CREDITS): 20P11EC111 (3)

MAX. MARKS: 25

COURSE NAME: IOT AND APPLICATIONS

COURSE INSTRUCTORS: Dr. Alok Kumar

MAX. TIME: 1 Hour 30 Min

**Note:** (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.No	Question	CO	Marks
Q1	What are the key challenges in designing routing protocols for wireless sensor networks (WSNs)? A sensor network is deployed in a battlefield scenario. Which routing protocol would be most suitable, and why?	CO3	4
Q2	If a WSN is suffering from excessive energy consumption, what routing strategies can be applied to extend network lifetime? Compare the performance of LEACH and PEGASIS protocols in terms of energy efficiency.	CO3	5
Q3	What are the key components of an M2M communication system? Discuss the role of M2M communication in the Internet of Things (IoT). Differentiate between licensed and unlicensed spectrum in M2M communication.	CO2	6
Q4	What is interoperability in IoT, and why is it important? Explain the different levels of interoperability in IoT (technical, syntactic, semantic, and organizational).	CO4	4
Q5	Briefly explain the following communication technologies: a) LPWAN, b) Bluetooth, c) Zigbee.	CO1	6