

## JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

## TEST -2 EXAMINATION- 2025

Ph.D. 1<sup>st</sup> Semester (CSE/BI/BT)

COURSE CODE (CREDITS): 20P11EC111 (3)

MAX. MARKS: 25

COURSE NAME: IOT and Applications

COURSE INSTRUCTORS: Dr. Vivek Kumar Sehgal

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**(c) Calculator is not allowed*

| Q.No | Question                                                                                                                                              | CO     | Marks |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------|
| Q1   | (a) What are the projected global economic impacts of IoT-based services in healthcare and manufacturing by 2025?                                     | CO-1   | 2.5   |
|      | (b) How do M2M, P2M, and P2P traffic flows influence the need for QoS provisioning by Internet Service Providers in IoT networks?                     |        | 2.5   |
| Q2   | (a) Explain the role and function of the five layers in the IoT five-layer architecture model.                                                        | CO-2   | 2.5   |
|      | (b) Why is the five-layer architecture considered more applicable for IoT systems compared to the traditional three-layer model?                      |        | 2.5   |
| Q3.  | (a) What is the difference between object identification and object addressing in IoT networks, and why is this distinction important?                | CO-1,2 | 2.5   |
|      | (b) How do sensing, communication, and computation collectively contribute to the realization of IoT services?                                        |        | 2.5   |
| Q4.  | (a) Describe the main features and benefits of the Constrained Application Protocol (CoAP) in IoT communication.                                      | CO-2,3 | 2.5   |
|      | (b) How do different standardization organisations (e.g., IEEE, IETF, W3C, ETSI) contribute to the development of IoT protocols and interoperability? |        | 2.5   |
| Q5.  | (a) What are the main challenges related to availability, reliability, and mobility in IoT systems?                                                   | CO-3   | 2.5   |
|      | (b) Discuss how lightweight management protocols such as LWM2M and NETCONF Light help address IoT management challenges.                              |        | 2.5   |