



K. K. Wagh Institute of Engineering Education & Research, Nashik
(An Autonomous Institute From A.Y. 2022-23)

WINTER-2025	
Exam Seat No.:	
Academic Year:2025-2026	Semester:V
Class:TY	Program:B.Tech
Branch Code:INT	Pattern:2023
Name of Course:Internet of Things	Course Code:2308306A
Max. Marks:60	Duration:2.30 Hrs.

Instructions: Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains 2 page(s).
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question.

Marks CO

Question No. 1

- a) Compare IoT Level 1 and Level 2 in terms of system complexity, data processing, and scalability. (6) CO1

Question No. 2

- b) Differentiate between fog and cloud computing in IoT based on location, latency, and data processing. (6) CO4

Question No. 3

- a) Explore the IEEE 802.11 wireless network architecture and describe its advantages and disadvantages in practical applications. (5) CO5

OR

- b) Draw and Describe the Zigbee architecture and discuss its practical applications in home automation. (5) CO5
- c) How would you apply the features of IPv6 to overcome the limitations of IPv4 in a real-world networking scenario. (5) CO5

OR

- d) Discuss how the IEEE 802.15.4 standard supports low-power wireless communication and describe the structure of its physical frame format. (5) CO5
- e) Discuss the Fragment Offset, Time To Live, Total Length, and Type of Service (ToS) fields from the IPv4 header format. (6) CO5

OR

- f) Describe in detail the four types of MAC frames specified in IEEE 802.15.4 and outline the key tasks performed by the MAC layer in wireless communication. (6) CO5

Question No. 4

- a) Discuss how you would apply the differences between IPv4 and IPv6 in terms of address size, address representation, and address types while designing a modern communication network (5) CO2

OR

- b) Demonstrate the application of unicast and multicast addressing in IPv6 for optimizing data delivery in a real-world network scenario. (5) CO2
- c) How can the IPv6-to-IPv4 tunneling technique be applied to maintain seamless communication between IPv6 and IPv4 networks during migration? (5) CO2

OR

- d) How can IPv6 migration strategies be applied to effectively upgrade an IPv4 network to IPv6 with minimal disruption? (5) CO2
- e) Describe how the concept of value creation in the Internet of Things (IoT) can be applied to enhance business processes or improve customer experiences in a practical scenario. (6) CO2

OR

- f) Elaborate on the four steps of creating a successful IoT business model to design a real-world IoT service or product. (6) CO2

Question No. 5

- a) Compare Raspberry Pi, CubieBoard, and Arduino for IoT projects in terms of practical applications, hardware availability, and ease of implementation. (8) CO3

OR

- b) Apply the understanding of security challenges in the Internet of Things (IoT) — including Data Privacy Issues, Weak Authentication and Authorization, Device Vulnerabilities, and Network Security Risks — to analyze their causes, associated risks, and illustrate them with suitable real-world examples. (8) CO3
- c) In what ways does Smart Metering support real-time monitoring and billing? What are the possible security risks in this process? (8) CO3

OR

- d) Describe how e-Health Body Area Networks (BANs) enable continuous health monitoring through wearable and implantable devices, highlighting their advantages in real-time patient care. (8) CO3

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