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 2 and Level 3 in terms of system complexity, data processing, and scalability	(6)	CO1
Question No. 2			
b)	Differentiate between edge, fog, and cloud computing in IoT by giving suitable use cases and examples.	(6)	CO4
Question No. 3			
a)	Explore the IEEE 802.15.4 standard supports low-power wireless communication and describe the structure of its physical frame format.	(5)	CO5
	OR		
b)	Draw and Describe the Zigbee architecture and discuss its practical applications in home automation	(5)	CO5
c)	In what ways can the advantages and disadvantages of IEEE 802.15.4 assist in determining its suitability and identifying its applications in various IoT systems?	(5)	CO5
	OR		
d)	In which situations would you apply the features of IPv6 to overcome the limitations of IPv4 in a real-world networking scenario?	(5)	CO5
e)	Discuss the Version, Header Length, Identification, Source IP Address and Type of Service (ToS) fields from the IPv4 header format.	(6)	CO5
	OR		
f)	Describe the detail the four types of MAC frames specified in IEEE 802.15.4 and explore the key tasks performed by the MAC layer in wireless communication.	(6)	CO5
Question No. 4			
a)	Discuss how would you apply the differences between IPv4 and IPv6 in terms of address size, address representation and address configuration while designing a modern communication network?	(5)	CO2

OR

b)	Illustrate the application of unicast, and anycast addressing in IPv6 to optimize 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) be applied to enhance business processes or improve customer experiences in a practical scenario?	(6)	CO2

OR

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

Question No. 5

a)	Differentiate between Arduino and Raspberry Pi in terms of their architecture, functionality, and practical applications.	(8)	CO3

OR

b)	Examine the security challenges in the Internet of Things (IoT) — including Data Privacy Issues , Physical Security Threats, Cloud Security Risks ans Lack of Standardization— by analyzing their causes, associated risks, and suitable real-world examples	(8)	CO3
c)	To what extent can you analyze the advantages of implementing IoT-based city automation in terms of privacy concerns, technology dependency, and the digital divide in a real-world context?	(8)	CO3

OR

d)	How would you analyze the security and privacy challenges in e-Health Body Area Networks (BANs), particularly related to the wireless transmission of sensitive health data, in a practical healthcare scenario?	(8)	CO3

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