



Model Question Paper
Fifth Semester BE Degree Examination
Internet of Things

Time: 3 Hours(180 Minutes)

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.

2. M: Marks, L: RBT (Revised Bloom's Taxonomy) level, C: Course outcomes.

Module -1			M	L	C
Q1	a.	Trace and explain the major stages in the evolution of IoT.	06	L2	CO1
	b.	With a neat diagram, describe the role of perception, network, and application layers in IoT networking, mentioning the key components in each layer.	07	L2	CO1
	c.	Explain the different address classes (A, B, C, D, E) with their ranges, default subnet masks, and typical uses.	07	L2	CO1
OR					
Q2	a.	Differentiate between IoT, M2M, CPS, and WoT in terms of definition, architecture, connectivity, and applications. Provide at least one real-world example for each.	06	L2	CO1
	b.	With a suitable diagram, describe how hierarchical addressing works in IoT and why it is preferred in large networks.	07	L2	CO1
	c.	Explain the challenges of maintaining addressing when IoT nodes move between different networks. How do protocols like Mobile IP address these issues?	07	L2	CO1
Module- 2					
Q3	a.	With a neat diagram, describe the IEEE 802.15.4 protocol architecture and explain its relevance to IoT communication.	06	L2	CO2
	b.	With a neat diagram, describe the WirelessHART protocol stack and explain how each layer contributes to reliable communication.	07	L2	CO2
	c.	With a neat diagram, describe the NB-IoT network architecture and the role of each component in communication.	07	L2	CO2
OR					
Q4	a.	Explain the main features of ISA100.11a, including its frequency band, topology support, and typical industrial applications.	06	L2	CO2
	b.	Discuss the advantages and limitations of Sigfox for large-scale IoT deployments. Provide at least two real-world examples.	07	L2	CO2
	c.	With a neat diagram, compare the network architectures of Wi-Fi and Bluetooth, highlighting their strengths and limitations for IoT.	07	L2	CO2
Module - 3					
Q5	a.	Explain the main features of RPL and its suitability for Low-Power and Lossy Networks (LLNs) in IoT applications.	06	L2	CO3
	b.	Explain the main features of MQTT and why it is well-suited for low-bandwidth and resource-constrained IoT devices.	07	L2	CO3
	c.	With a neat diagram, describe the SOAP message structure and explain the purpose of its key elements (envelope, header, body, fault).	07	L2	CO3
OR					
Q6	a.	With a neat diagram, describe the 6LoWPAN protocol stack and explain the	06	L2	CO3

		functions of its adaptation layer.			
	b.	With a neat diagram, describe the architecture of AMQP and XMPP, focusing on how each handles message routing and delivery.	07	L2	CO3
	c.	Explain the role of identification protocols in IoT and describe at least three commonly used protocols.	07	L2	CO3
Module - 4					
Q7	a.	Discuss the challenges of securing IoT devices compared to traditional IT systems. Provide relevant examples.	06	L2	CO4
	b.	Explain the main characteristics of symmetric-key lightweight cryptography algorithms and why they are suitable for IoT devices.	07	L2	CO4
	c.	Explain the concept of security bootstrapping in IoT and why it is critical for device authentication and trust establishment.	07	L2	CO4
OR					
Q8	a.	Explain the concept of lightweight cryptography and why it is essential for IoT devices.	06	L2	CO4
	b.	Explain the concept of public-key lightweight cryptography and why it is important for IoT security. Give two examples of such algorithms.	07	L2	CO4
	c.	With a neat diagram, describe the architecture of IoT-OAS and explain its key components.	07	L2	CO4
Module - 5					
Q9	a.	Explain the three primary cloud service models (IaaS, PaaS, SaaS) with examples of how each is applied in IoT.	06	L2	CO5
	b.	Explain the concept of big data processing patterns and their relevance in IoT analytics	07	L2	CO5
	c.	Explain the concept of big data stream processing and its importance for real-time IoT applications.	07	L2	CO5
OR					
Q10	a.	With a neat diagram, describe the architecture of a Sensor-Cloud system and explain the role of each layer.	06	L2	CO5
	b.	Explain the concept of big data stream processing and its importance for real-time IoT applications.	07	L2	CO5
	c.	Explain the concept of fog computing and its role in enhancing IoT performance compared to traditional cloud computing.	07	L2	CO5
