Semester: 7 Sem	Department of Computer Science & Engineering	AY: 2026-27
Course Code: BCS701	Course Name: Internet of Things	

Question Bank

	Module-01	M	L	C
Q.1	Define IoT and explain its key characteristics, including dynamic self-adaptation, self-configuration, and interoperable communication protocols.	10	L2	CO1
Q.2	Explain in detail the physical design of an IoT system with respect to the various layers of the IoT protocol stack.	10	L2	CO1
Q.3	With neat diagrams, explain the four primary communication models used in the logical design of an IoT system.	10	L2	CO1
Q.4	Discuss the role of enabling technologies such as Wireless Sensor Networks (WSN), Cloud Computing, and Big Data Analytics in the IoT ecosystem.	10	L2	CO1
Q.5	Illustrate the differences between IoT Level 4 and Level 5 architectures. Provide a real-world use case for each.	10	L2	CO1
Q.6	Describe the essential functional blocks of an IoT system and explain how they contribute to the end-to-end flow of information.	10	L2	CO1
	Module-02			
Q.7	Differentiate between M2M and IoT based on their architectural components and connectivity models.	10	L2	CO2
Q.8	Explain the three-layer architecture of Software Defined Networking and discuss how it improves IoT network management.	10	L2	CO2
Q.9	Discuss the concept of Network Function Virtualization and explain its application in virtualizing an IoT home gateway.	10	L2	CO2
Q.10	Analyze the role of NETCONF as a modern network management protocol and explain how it overcomes the limitations of SNMP.	10	L2	CO2
Q.11	Define YANG as a data modeling language and describe its primary node types: leaf, leaf-list, container, and list.	10	L2	CO2
Q.12	Describe the hierarchical layers of the NETCONF protocol and explain the function of the operations layer with examples.	10	L2	CO2
	Module-03			
Q.13	Explain steps involved in the IOT system design methodology.	10	L2	CO3
Q.14	Illustrate and explain the Domain Model and Informa on Model of a Home Automation IoT System using a neat and labelled diagram.	10	L2	CO3
Q.15	Explain operational view specification for home automation system with neat diagram.	10	L2	CO3

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Q.16	Explain Domain model and information on model for weather monitoring IoT system with neat diagram.	10	L2	CO3
Q.17	Describe how deployment levels are mapped to functional groups in a Weather Monitoring IoT System, using a neat and labelled diagram to support your explanation.	10	L2	CO3
Q.18	Explain the use of lists, tuples, sets, and dictionaries in Python with examples.	10	L2	CO3
Q.19	You are building an automated irrigation system using IoT. How can control flow help you manage different conditions like soil moisture, time of day, and rain prediction?	10	L2	CO3
Q.20	List and describe any four Python libraries used in IoT applications.	10	L2	CO3
Q.21	Explain the concept of inheritance in Python with a suitable example.	10	L2	CO3
Q.22	How is function overriding implemented in Python.	10	L2	CO3
	Module-04			
Q.23	What is Raspberry Pi? List the key features that make it suitable for loT applications.	10	L2	C04
Q.24	Describe at least three types of interfaces available on the Raspberry Pi and their relevance in loT.	10	L2	C04
Q.25	Write a Python program to blink an LED connected to GPIO pin 18 on Raspberry Pi.	10	L2	C04
Q.26	Explain the role of GPIO pins on Raspberry Pi. How are they useful in controlling sensors and actuators?	10	L2	C04
Q.27	Python program to tum LED on/off based on the light-Level sensed(LDR)	10	L2	C04
Q.28	Describe the Domain Mode and Information Model of a Home Intrusion Detection loT System with the help of a neat and labelled diagram.	10	L2	C04
Q.29	Explain process specification and domain model of the smart parking loT system with neat diagram	10	L2	C04
	Module-05			
Q.30	What is Hadoop? Explain the key components of Haddop	10	L2	C05
Q.31	Describe the functions of the key processes of Hadoop.	10	L2	C05
Q.32	Explain the steps to set up a Hadoop cluster	10	L2	C05
Q.33	Describe the use of Map Reduce for batch analysis of IOT data.	10	L2	C05

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Q.34	What is YARN? .Explain the key components of YARN.	10	L2	C05
Q.35	Explain about Apache Ozie.	10	L2	C05
Q.36	What are the features of Apache Spark	10	L2	C05
Q.37	Explain the process of setting up a Apache storm cluster.	10	L2	C05
Q.38	Describe the way by which Apache storm can be used for Real -time Data Analysis.What are the two approaches?	10	L2	C05
Q.39	Explain the components of Spark cluster with the help of a block diagram.	10	L2	C05

***Note:**

1. All modules should contain a minimum of **10** questions each and the total number of questions must be **50**.
2. Questions can carry marks of 06, 07, 08, 09, 10 and for problems: 04 or 05.
3. Follow the RBTL as per the keywords used to frame the questions.
4. Maintain the Course Outcomes (COs) as per the syllabus.
5. M: Marks, L: RBTL, C:COs.

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