Reg. No.															

Question Paper Code	14045

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2025

ThirdSemester

Computer Science and Engineering (IoT)

24CIPC301 - INTRODUCTION TO INTERNET OF THINGS

Regulations - 2024

Duration: 3 Hours Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	Identify the number of address lines available in the 8086 microprocessor. (a) 16(b) 20 (c) 24 (d) 32	1	K1	CO1
2.	Indicate which of the following microcontrollers belongs to the 8-bit family. (a) 8086(b) 8051 (c) 80286 (d) 8088	1	K1	CO1
3.	Find the type of processor used in ARM Cortex M4. (a) 8-bit RISC(b) 16-bit CISC(c) 32-bit RISC(d) 64-bit CISC	1	K2	CO2
4.	Specify which register in ARM Cortex M4 is used to store the current program address. (a) R0(b) R7(c) LR(d) PC	1	K1	CO2
5.	Select the correct definition of the Internet of Things (IoT) from the following options. (a) Network of web servers (b) Connection of physical devices through the internet to collect and share data (c) A software-only application network (d) Only cloud-based computing services	1	K1	CO3
6.	Choose which protocol is commonly used for lightweight communication in IoT. (a) HTTP (b) SMTP(c) MQTT(d) FTP	1	K1	CO3
7.	Select the protocol primarily used for network device management. (a) MQTT(b) SNMP(c) HTTP(d) CoAP	1	K1	CO4
8.	Identify which of the following a data is modeling language used with NETCONF for IoT system management. (a) XML(b) JSON(c) YANG(d) HTML	1	K2	CO4
9.	Indicate the Python data type that is immutable. (a) List(b) Set (c) Dictionary(d) Tuple	1	K1	CO5
10.	Specify the operating system that runs on Raspberry Pi. (a) Windows (b) Android(c) Linux(d) macOS	1	K1	CO6

PART - B (12 × 2 = 24 Marks)

Answer ALL Questions

11.	Identify the main functional units of the 8086 microprocessor using a block diagram.	2	K2	CO1
12.	Mention the significance of the Program Counter and Stack Pointer registers in the 8086 microprocessor.	2	K1	CO1
13.	State the purpose of the Program Status Register (PSR) in the ARM Cortex M4 architecture.	2	K2	CO2
14.	Point out the types of memory used in the ARM Cortex M4 and their specific functions.	2	K2	CO2
15.	Indicate the importance of IoT enabling technologies such as cloud computing and big data analytics.	2	K1	CO3
16.	Specify the functional requirements needed to build an IoT system.	2	K1	CO3
17.	Define Machine-to-Machine (M2M) communication and state its main purpose.	2	K1	CO4
18.	Indicate the role of SDN (Software Defined Networking) in managing IoT networks.	2	K1	CO4
19.	Show the key stages involved in the IoT methodology from requirement specification to service specification.	2	K1	CO5

20.		Classify the main stages in the IoT methodology used for developing IoT systems.	2	K2	CO5
21.		Indicate the role of Raspberry Pi in developing IoT-based weather monitoring systems.	2	K1	CO6
22.		Write any two real-time IoT applications used in smart cities.	2	K2	CO6

PART - C (6 × 11 = 66 Marks)

Answer ALL Questions

23.	a)	Outline the architecture of the 8086 microprocessor and explain the role of the Bus Interface Unit (BIU) and Execution Unit (EU).	11	K2	CO1
		OR			
	b)	Compare the 8086 microprocessor and the 8051 microcontroller based on architecture, memory organization, and application.	11	K2	CO1
24.	a)	Illustrate the register organization of ARM Cortex M4 with a neat diagram and explain the role of core and special-purpose registers.	11	K2	CO2
		OR			
	b)	Outline the role of different registers in the ARM Cortex M4 microcontroller. Describe how general-purpose, special-purpose, and status registers help improve program execution.	11	K2	CO2
25.	a)	Summarize the importance of IoT protocols such as MQTT, CoAP, and HTTP. Illustrate how they enable device-to-device and device-to-cloud communication.	11	K2	CO3
		OR			
	b)	Explain the logical design of IoT with neat diagrams. Illustrate the functional blocks and their interactions in an IoT architecture.	11	K2	CO3
26.	a)	Outline the basic working principles of SDN and NFV and illustrate how they enhance IoT system management.	11	K2	CO4
		OR			
	b)	Describe the architecture and components of Machine-to-Machine (M2M) communication with neat diagrams.	11	K2	CO4
27.	a)	Construct various IoT levels and deployment models. Explain how each level supports communication, data processing, and control.	11	K2	CO5
		OR			
	b)	Illustrate the role of Python cloud libraries and remote access modules in IoT systems. Explain how they enable real-time data monitoring and control.	11	K2	CO5
28.	a)	Make use of the role of IoT in smart agriculture, industry, and home automation. Illustrate how sensors and actuators contribute to these applications.	11	K3	CO6
		OR			
	b)	Apply the IoT architecture in IoT-based weather monitoring system using Raspberry Pi.	11	K3	CO6