Reg. No. : | | | | | | | | | | | | |

Question Paper Code: U6F02

B.E./B.Tech. DEGREE EXAMINATION, APRIL / MAY 2025

Sixth Semester

Computer Science and Engineering

21UCD602- IOT DESIGN

(Common to CSD Engineering Branches)

(Regulations 2021)

Duration: Three hours | Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1.	List the components involved in the physical design of IoT?	CO1- U
2.	Mention any two IoT communication models.	CO1- U
3.	Define the M2M value chain and identify its key components.	CO1- U
4.	List the Basic building blocks of IoT.	CO1- U
5.	Illustrate the use of SCADA in industrial automation.	CO1- U
6.	What is IEEE 802.15.4 and where is it used?	CO1- U
7.	What is IoT, and how does it relate to cloud computing?	CO1- U
8.	Write a simple Arduino code snippet to blink an LED.	CO2- App
9.	What are two common security threats in IoT?	CO1- U
10.	Write a command to initialize serial communication in an Arduino-based IoT project.	CO2- App

PART – B (5 x 16= 80 Marks)

11.	(a)	Explain the working of a smart home system, detailing its functional blocks, communication models, and API integration.	CO1- U	(16)

Or

	(b)	What are sensors and actuators in IoT? Explain their working principles with relevant applications.	CO1- U	(16)
12.	(a)	Explain the transition from M2M to IoT, highlighting their value chains and architectures.	CO1- U	(16)
		Or		
	(b)	Discuss the IoT reference architecture in detail.	CO1- U	(16)
13.	(a)	Explain the architecture and properties of a microcontroller in detail.	CO1- U	(16)
		Or		
	(b)	Explain different IoT communication protocols. How do these protocols ensure efficient data transmission?	CO1- U	(16)
14.	(a)	Describe how mobile devices communicate with microcontrollers in an IoT system. Explain Bluetooth and WiFi connectivity with examples.	CO1- U	(16)
		Or		
	(b)	Describe how a microcontroller interacts with sensors and cloud platforms in an IoT system. Give an example of data transmission.	CO1- U	(16)
15.	(a)	Design a cybersecurity framework for IoT applications in smart cities.	CO2- App	(16)
		Or		
	(b)	Describe the architecture of a connected vehicle system using IoT. Explain the integration of sensors, microcontrollers, cloud servers, and communication technologies in connected vehicle networks.	CO2- App	(16)