QP Code: RA23BTECH149 | Reg. No | | | | | | | | | | | AY 23

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET University)

B. Tech (Sixth Semester - Regular) Examinations, April 2026

23BCSPC36001 / 23BCDPC36001 – Introduction to Internet of Things

(Common to CSE & CSE(DS))

Time: 3 hrs | Maximum: 60 Marks

Answer ALL questions

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions		CO #	Blooms Level
a.	Why is an IoT Gateway important in connecting sensors to the cloud?	CO1	K1
b.	Write an Arduino code to measure the distance of an object using a sensor.	CO2	K2
c.	Note the importance of XaaS in IoT.	CO3	K1
d.	State the differences between structured and unstructured IoT data.	CO4	K1
e.	Mention the security challenge specific to resource-constrained IoT devices.	CO5	K1

PART – B **(10 x 5 = 50 Marks)**

Answer ***ALL*** the questions		Marks	CO #	Blooms Level
2. a.	Discuss the key enabling technologies used in IoT.	5	CO1	K2
b.	Write short notes on MQTT, CoAP, AMQP, DDS and Web-socket.	5	CO1	K1
	(OR)			
c.	Summarize the differences between M2M and IoT technologies.	5	CO1	K2
d.	Illustrate the IoT Level-6 system with neat sketch and explain its components.	5	CO1	K1
3.a.	Compare Raspberry Pi and Arduino in handling real-time sensor data and actuator control.	5	CO2	K3
b.	Discuss how to choose the most suitable communication module for a smart city IoT application.	5	CO2	K4
	(OR)			
c.	Write an Arduino program to display alphabets (A–E) on a common cathode seven-segment display.	5	CO2	K3
d.	Analyse the suitability of LoRa and ZigBee for agricultural IoT monitoring systems.	5	CO2	K4
4.a.	Explain the difference between edge computing and fog computing in IoT.	5	CO3	K1
b.	Illustrate the techniques used for managing and processing data in an IoT environment.	5	CO3	K2
	(OR)			
c.	Explain the interfacing of a 16×2 LCD with Arduino and write a program to display Temperature in first row and Humidity in 2nd row.	5	CO3	K3
d.	Analyze the importance of data integration for effective IoT analytics.	5	CO3	K4
5.a.	Explain the step-by-step process involved in developing an IoT application and highlight the importance of each phase.	5	CO4	K1
b.	Analyse how encryption techniques protect data communication between IoT devices and the cloud.	5	CO5	K4

(OR)

c.	Explain the key components of an IoT application framework and their role in developing IoT solutions.	5	CO4	K1
d.	Explain how authentication and authorization together prevent unauthorized access in IoT systems.	5	CO5	K2
6.a.	Explain an IoT-based soil moisture monitoring system and how it helps in precision irrigation.	5	CO6	K3
b.	Design an IoT-based remote patient monitoring system and explain its working.	5	CO6	K3

(OR)

c.	Analyse the impact of IoT-based lab monitoring systems on student safety and resource utilization.	5	CO6	K4
d.	Explain an IoT system for air quality monitoring in urban areas. Discuss sensor deployment and data analytics.	5	CO6	K3

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