



PRESIDENCY UNIVERSITY

BENGALURU

Roll No.														
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End - Term Examinations – May/June 2026

Date: 14 – 05- 2026

Time: 01:00pm – 04:00pm

School: SOCSE	Program: B. Tech IoT	
Course Code: CIT2504	Course Name: AI and Deep Learning in IoT	
Semester: VI	Max Marks: 100	Weightage: 50%

CO - Levels	CO1	CO2	CO3	CO4	CO5
Marks	24	24	26	26	-

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks.

10Q x 2M=20M

1.	Define Artificial Intelligence (AI) and its primary goal.	2 Marks	L1	CO1
2.	What is the role of an IoT Gateway in a smart home ecosystem?	2 Marks	L2	CO2
3.	Distinguish between precision and accuracy in the context of a sensor.	2 Marks	L3	CO3
4.	List any four key technologies that fall under the umbrella of Artificial Intelligence.	2 Marks	L1	CO1
5.	What is the primary function of the MQTT protocol in IoT communications?	2 Marks	L2	CO2
6.	Explain the difference between an analog sensor and a digital sensor.	2 Marks	L3	CO3
7.	What is the significance of "Edge Computing" in an AIoT architecture?	2 Marks	L4	CO4
8.	State the purpose of using TensorFlow Lite in AIoT development.	2 Marks	L1	CO4
9.	How does the Seebeck effect contribute to temperature sensing?	2 Marks	L2	CO3
10.	Why is the combination of AI with IoT (AIoT) considered more powerful than IoT alone?	2 Marks	L2	CO4

Part B

Answer the Questions.

Total Marks 80M

11.	a.	Discuss in detail the concept of AIoT, its layered architecture (Device, Edge, Connectivity, Cloud), and its revolutionary benefits. Using a real-world example like a smart traffic management system, explain how the AI and IoT components interact to deliver a solution that neither could achieve alone.	20 Marks	L3	CO1
Or					
12.	a.	Analyze the evolution of AI from Narrow AI to the theoretical concept of Superintelligent AI. With specific reference to the technologies of Machine Learning, Deep Learning, and Computer Vision, illustrate how these different forms of AI are integrated with IoT devices to create intelligent systems.	20 Marks	L3	CO1
13.	a.	Explain the concept of "seamless connectivity" between mobile devices and IoT gateways. Describe at least three key techniques (e.g., auto-discovery protocols, persistent connections, protocol bridging) that enable this seamlessness. Critically evaluate the challenges in achieving reliable connections and how the new "Matter" standard aims to solve them.	20 Marks	L2	CO2
Or					
14.	a.	A user wants to set up a home security system consisting of Z-Wave door sensors, a Zigbee smart lock, and Wi-Fi cameras, all to be controlled from a single smartphone app. With reference to the role of an IoT gateway, explain the step-by-step process of how the mobile app connects to and controls these diverse devices, covering device discovery, protocol translation, and communication flow.	20 Marks	L2	CO2
15.	a.	Distinguish between the fundamental working principles of a Piezoelectric sensor and a Capacitive sensor. For each sensor type, describe its underlying academic concept (Piezoelectric Effect and Capacitive Sensing) and provide a detailed IoT application example. Discuss how these physical principles are translated into measurable electrical signals.	20 Marks	L3	CO3
Or					
16.	a.	A team is tasked with developing an early flood warning system for a river. They plan to use an ultrasonic sensor to measure water level. Describe the working principle of the ultrasonic sensor, including the Time-of-Flight concept. Explain the	20 Marks	L3	CO3

		complete system from sensor placement, data processing logic (including calibration for temperature), and how AI could be used to improve prediction accuracy beyond simple threshold alerts.			
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17.	a.	You are the lead developer for a smart agriculture project that requires monitoring plant health across a large farm. Propose a complete AIoT system architecture, including the hardware (sensors, edge devices), connectivity (LoRaWAN, Wi-Fi), and cloud/edge AI tools (TensorFlow Lite, AWS IoT Core). Justify your technology choices and explain how the system would detect and act upon a disease outbreak.	20 Marks	L4	C04
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Or

18.	a.	Design a smart door access control system for a small office that uses facial recognition. Your answer should include the selection of appropriate hardware (Raspberry Pi, camera, lock actuator), the deployment strategy for the AI model (on-device vs. cloud), and the software tools for implementation. Critically analyze the security challenges (e.g., spoofing) and propose countermeasures for a robust, privacy-respecting system.	20 Marks	L4	C04
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