

Enrollment No./Seat No.:

GUJARAT TECHNOLOGICAL UNIVERSITY
Bachelor of Engineering - SEMESTER - VI EXAMINATION - WINTER 2025

Subject Code: 116AI01

Date: 06-12-2025

Subject Name: IoT Networking technologies and Security

Time: 02:30 PM TO 05:00 PM

Total Marks: 70

Instructions

- 1. Attempt all questions.**
- 2. Make suitable assumptions wherever necessary.**
- 3. Figures to the right indicate full marks.**
- 4. Simple and non-programmable scientific calculators are allowed.**

	Marks
Q.1 (a) What do you mean by the term "things" in IoT?	03
(b) Differentiate IoT and WSN based on their architecture and scope.	04
(c) Describe the overall architecture of an IoT system. Explain how integration with physical systems introduces security requirements.	07
Q.2 (a) List three common security algorithms used for IoT data protection.	03
(b) Differentiate between TCP and UDP transport protocols based on reliability and resource usage.	04
(c) Explain MQTT and CoAP messaging protocols. Describe a scenario where one is preferred over the other.	07
OR	
(c) What are the two versions of IP protocol? Explain both of them in the context of IoT.	07
Q.3 (a) Explain the term 'Smart City' in IoT.	03
(b) Justify why security mechanisms are critical for Modern Vehicles connected to IoT ecosystems.	04
(c) Describe the security and privacy issues in Smart Home IoT systems. Provide simple mitigation steps.	07
OR	
(a) Explain BYOD in the context of IoT security.	03
(b) Evaluate the importance of Availability, Integrity, and Confidentiality (CIA) in a Smart Grid Network implementation.	04
(c) Describe the security issues and mechanisms used in Mobile HealthCare IoT systems. Give a relevant case study.	07
Q.4 (a) Discuss merits and demerits of SDN.	03
(b) Differentiate SDN and Traditional Networking.	04
(c) What is SDN? Explain its architecture. How it can be attacked?	07

OR

- (a)** Formulate a single design principle to enhance traffic flow security monitoring in the SDN data plane. **03**
- (b)** Explain the concept of privacy leakage in SDN with one relevant example. **04**
- (c)** Explain how an attacker can exploit the SDN Control Plane. Discuss the resulting impact on network operations. **07**

- Q.5**
- (a)** State the function of the Transport Layer in the context of IoT network security. **03**
 - (b)** Compare and contrast between CPS and IoT systems. **04**
 - (c)** What is CPS? Describe the fundamental components of a CPS platform. **07**

OR

- (a)** Propose one conceptual security step when deploying a new sensor node in an existing CPS. **03**
- (b)** Compare key implementation issues of traditional embedded systems and Intelligent CPS. **04**
- (c)** Explain the implementation issues faced when deploying CPS. Describe how network security controls ensure system resilience. **07**
