

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER– VII EXAMINATION – SUMMER 2026****Subject Code:3173215****Date:05-06-2026****Subject Name:di and its applications****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 are the features & applications of XMPP?	03
	(b) Compare CoAP with MQTT in operational aspects.	04
	(c) What are the various cloud deployment models? List their merits and demerits.	07
Q.2	(a) Differentiate between Wireless Sensor Network (WSN) & IoT.	03
	(b) Draw IoT protocol stack and explain any three layers in brief.	04
	(c) Write classification of sensors used in IoT according to output generated by the sensors. Also, classify following sensors in each category: Ultrasonic sensor, Smoke sensor, IR sensor, Motion sensor, Proximity sensor.	07
OR		
Q.3	(c) Explain architecture of DDS protocol. What is the difference between DDS & MQTT?	07
	(a) How is Li-Fi different from Wi-fi? Which one would you prefer and why?	03
	(b) What do you mean by enabling technologies of IoT? Explain about each one of them in brief.	04
	(c) Explain general guidelines which should be followed while selecting any Cloud Service Provider for any IoT based application.	07
OR		
Q.3	(a) What is Raspberry Pi? What are its potential applications? Write features of any one model of Raspberry Pi.	03
	(b) Draw common architecture of IoT based application and explain each block in brief.	04
	(c) Draw the block diagram for designing an IoT based “Smart Railway Station” & explain requirements of each component in detail.	07
Q.4	(a) What are the features of Arduino Uno?	03
	(b) How is IPv4 inferior to IPv6?	04
	(c) Write Arduino Code to implement motion detection and light ON system for smart house.	07
OR		
Q.4	(a) What are the potential advantages of IFTTT?	03
	(b) Explain following functions of Arduino programming: digitalWrite(), digitalRead(), analogWrite(), analogRead().	04
	(c) List the differences between Cyber Physical System (CPS) and IoT.	07

- Q.5** (a) What parameters should be considered while developing any IoT based applications? **03**
- (b) Explain functionality of MQTT protocol with some applications. **04**
- (c) What is Mirai Botnet? Give its importance. **07**

OR

- Q.5** (a) Explain about Fog Computing. Justify the role of Fog Computing in IoT. **03**
- (b) Discuss the CoAP message types and AMQP protocol with relevant examples. **04**
- (c) What do you mean by pipelining? Explain load and store instruction in ARM7 with pipelining. **07**
