GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (NEW) EXAMINATION – WINTER 2023

Subject Code:3171108   **Date:06-12-2023**

Subject Name:Internet of Things

Time:10:30 AM TO 01:00 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)**	Enlist various characteristics of IOT systems.	**03**
	(b)	Discuss in details the various components of IOT system.	**04**
	(c)	Draw and discuss the Physical Design of IOT.	**07**
Q.2	**(a)**	Enlist various cloud computing features and explain any one in detail.	**03**
	(b)	Write a note on sensors in IOT, their basic specifications and types of sensors, in brief.	**04**
	(c)	Draw and explain the pin diagram of Arduino UNO Development board, for IOT applications	**07**

OR

	(c)	Write a Arduino sketch, to turn a LED ON for 5 secs and turn the LED off for 15 secs. The LED is to be connected to the digital pin D1.	**07**
Q.3	**(a)**	Draw and describe basic Raspberry-pi boards pins functionalities.	**03**
	(b)	What are IOT Gateways ?	**04**
	(c)	Discuss SPI, I2C and SPI protocols used in Raspberry PI Communication Interfacing.	**07**

OR

Q.3	**(a)**	Enlist various features of IOT Gateways.	**03**
	(b)	Enlist various methods of uploading data from on field sensors to the cloud or on Mobile phones.	**04**
	(c)	Discuss the Request/Response, Publish/Subscribe, Push Pull Model and Exclusive pair models of communications between IOT Devices.	**07**
Q.4	**(a)**	Differentiate CoAP and MqTT Protocol.	**03**
	(b)	Elaborate Light Fidelity protocol.	**04**
	(c)	Apply a single bus communication protocol for interfacing DHT11 sensor communication with Arduino.	**07**

OR

Q.4	**(a)**	Write a Note on XMPP protocol.	**03**
	(b)	Explain HTTP Protocol in detail.	**04**
	(c)	Discuss various classes of IP addressing in detail.	**07**

Q.5	**(a)**	Write a note on IOT security issues and need.	**03**
	(b)	Classify the IOT systems based on their applications.	**04**
	(c)	Discuss the application of IOT in health care monitoring.	**07**

OR

Q.5	**(a)**	Explain components of Information security.	**03**
	(b)	Design any one of the possible IOT based solution for river water pollution monitoring.	**04**
	(c)	Draw and design a smart city street light control and monitoring.	**07**

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