Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII (NEW) EXAMINATION – WINTER 2021

Subject Code:3173215   **Date:27/12/2021**
Subject Name:IOT and its applications
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)	Give difference between Wireless Sensor Network (WSN) & IOT.	03
	(b)	What do you mean by enabling technologies of IOT? Explain about each one of them in brief.	04
	(c)	What are the various cloud deployment models? List their merits and demerits.	07
Q.2	(a)	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.	03
	(b)	Explain functionality of MQTT protocol with any one application.	04
	(c)	Explain architecture of DDS protocol. What is the difference between DDS & MQTT?	07

OR

			MARKS
	(c)	With a neat sketch, explain IOT stack with appropriate examples for each layer.	07
Q.3	(a)	Compare CoAP with MQTT in operational aspects.	03
	(b)	What are the features & applications of XMPP?	04
	(c)	List challenges while opting for IOT & cloud computing. How can we overcome them?	07

OR

			MARKS
Q.3	(a)	How is Li-Fi different from Wi-fi? Which one would you prefer and why?	03
	(b)	How is IPv4 inferior to IPv6?	04
	(c)	Discuss the CoAP message types with relevant examples.	07
Q.4	(a)	Write advantages of fog computing.	03
	(b)	What are the cloud security aspects in IOT infrastructure?	04
	(c)	Explain general guidelines which should be followed while selecting any Cloud Service Provider for any IOT based application.	07

OR

			MARKS
Q.4	(a)	How edge computing is different from fog computing?	03
	(b)	What are the potential advantages of IFTTT? How it is different from other cloud services?	04
	(c)	Which are the service models in cloud computing? Explain in brief.	07

Q.5 **(a)** What is Raspberry Pi? What are its potential applications? **03**

(b) Write features of latest version of Raspberry Pi. **04**

(c) What parameters should be considered while developing any IOT based applications? Draw common architecture of IOT based application and explain each block in brief. **07**

OR

Q.5 **(a)** What are the different types of security which should be provided in any IOT based application? **03**

(b) What are the features of Arduino Uno? Explain following functions of Arduino with example: analogRead( ), analogWrite( ). **04**

(c) Draw the block diagram for designing an IOT based "Smart Retail System in Shopping Mall" & explain requirements of each component in detail. **07**

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