Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– VI (NEW) EXAMINATION – WINTER 2021

Subject Code:3160716 Date:30/11/2021

Subject Name:IOT and 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.**

Q.1	**(a)**	Define following terms: IoT, Sensor, WSN.	**03**
	(b)	Explain characteristics of the IoT.	**04**
	(c)	Explain various levels of IoT.	**07**
Q.2	**(a)**	List down components of IoT system.	**03**
	(b)	Explain CSPR in ARM.	**04**
	(c)	Explain IoT Technology Stack.	**07**
		OR	
	(c)	Explain challenges of IoT.	**07**
Q.3	**(a)**	What is IP addressing?	**03**
	(b)	Difference between Microcontroller and Microprocessor.	**04**
	(c)	What is ARM? Explain special feature of ARM processor.	**07**
		OR	
Q.3	**(a)**	What is heartbeat sensor?	**03**
	(b)	Explain specification of sensor.	**04**
	(c)	Explain with diagram IPv4 header format.	**07**
Q.4	**(a)**	What is MQTT?	**03**
	(b)	Explain CoAP. List the key features of CoAP	**04**
	(c)	What is fog computing? List the characteristics of fog computing.	**07**
		OR	
Q.4	**(a)**	List and explain cloud components.	**03**
	(b)	Explain limitation of cloud computing.	**04**
	(c)	What are the security challenges of IoT?	**07**
Q.5	**(a)**	Explain in brief future factory concepts.	**03**
	(b)	What is smart city? What are the features of IoT based smart city?	**04**
	(c)	What is Arduino? Explain features of Arduino architecture.	**07**
		OR	
Q.5	**(a)**	What is Raspberry Pi?	**03**
	(b)	Explain security architecture.	**04**
	(c)	What risks do insecure IoT devices bring to privacy and security?	**07**

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Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (NEW) EXAMINATION – SUMMER 2022

Subject Code:3160716 Date:06/06/2022

Subject Name:IOT and 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)**	List any five IoT applications. Explain any one in details.	**03**
	(b)	What is Sensor ? List different types of Sensors used to develop IOT	**04**
	(c)	Draw and Explain ATMEGA328P Microcontroller Pin diagram.	**07**
Q.2	**(a)**	Explain MQTT Broker and client.	**03**
	(b)	Differentiate CoAP and MQTT.	**04**
	(c)	Draw and explain IPv4 Header.	**07**
		OR	
	(c)	Draw and explain IPv6 Header.	**07**
Q.3	**(a)**	Explain pinMode(), digitalRead() and digitalWrite () functions of Arduino	**03**
	(b)	Write Raspberry Pi code to change the brightness of LED.	**04**
	(c)	Write arduino code to identify PH value of Soap , Tap water and Lemon juice using PH sensor.	**07**
		OR	
Q.3	**(a)**	What is PWM? Explain usage of PWM pins with Example.	**03**
	(b)	Write Raspberry Pi code to blink LED ON and OFF .	**04**
	(c)	Write arduino code to transmit “Hello World – Code to demonstrate BT Communication” string on serial monitor using Bluetooth	**07**
Q.4	**(a)**	Explain Various application of IoT in Food and Healthcare.	**03**
	(b)	Which are the challenges in IoT with Cloud Computing? Explain any one.	**04**
	(c)	List and explain various types of Cloud Deployment Models, also discuss their merits and demerits	**07**
		OR	
Q.4	**(a)**	Explain Various application of IoT in Retail.	**03**
	(b)	Explain Security in cloud with respect to IOT based application.	**04**
	(c)	Discuss various types of Cloud Computing	**07**
Q.5	**(a)**	Explain IoT and cyber physical system.	**03**
	(b)	Explain any one algorithm for IOT security.	**04**
	(c)	Draw and explain architecture of IOT security	**07**
		OR	
Q.5	**(a)**	Explain IOT and WSN.	**03**
	(b)	Explain IOT security challenges.	**04**
	(c)	Explain various security issues and need for developing IOT based application.	**07**

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