

**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 CSPP 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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**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
<b>Q.1</b>	(a) List any five IoT applications. Explain any one in details.	<b>03</b>
	(b) What is Sensor ? List different types of Sensors used to develop IOT	<b>04</b>
	(c) Draw and Explain ATMEGA328P Microcontroller Pin diagram.	<b>07</b>
<b>Q.2</b>	(a) Explain MQTT Broker and client.	<b>03</b>
	(b) Differentiate CoAP and MQTT.	<b>04</b>
	(c) Draw and explain IPv4 Header.	<b>07</b>
	<b>OR</b>	
	(c) Draw and explain IPv6 Header.	<b>07</b>
<b>Q.3</b>	(a) Explain pinMode(), digitalRead() and digitalWrite () functions of Arduino	<b>03</b>
	(b) Write Raspberry Pi code to change the brightness of LED.	<b>04</b>
	(c) Write arduino code to identify PH value of Soap , Tap water and Lemon juice using PH sensor.	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) What is PWM? Explain usage of PWM pins with Example.	<b>03</b>
	(b) Write Raspberry Pi code to blink LED ON and OFF .	<b>04</b>
	(c) Write arduino code to transmit “Hello World – Code to demonstrate BT Communication” string on serial monitor using Bluetooth	<b>07</b>
<b>Q.4</b>	(a) Explain Various application of IoT in Food and Healthcare.	<b>03</b>
	(b) Which are the challenges in IoT with Cloud Computing? Explain any one.	<b>04</b>
	(c) List and explain various types of Cloud Deployment Models, also discuss their merits and demerits	<b>07</b>
	<b>OR</b>	
<b>Q.4</b>	(a) Explain Various application of IoT in Retail.	<b>03</b>
	(b) Explain Security in cloud with respect to IOT based application.	<b>04</b>
	(c) Discuss various types of Cloud Computing	<b>07</b>
<b>Q.5</b>	(a) Explain IoT and cyber physical system.	<b>03</b>
	(b) Explain any one algorithm for IOT security.	<b>04</b>
	(c) Draw and explain architecture of IOT security	<b>07</b>
	<b>OR</b>	
<b>Q.5</b>	(a) Explain IOT and WSN.	<b>03</b>
	(b) Explain IOT security challenges.	<b>04</b>
	(c) Explain various security issues and need for developing IOT based application.	<b>07</b>

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