

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2023**

**Subject Code:3173215****Date:16-12-2023****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
<b>Q.1</b>	(a) Explain the Role and Importance of Cloud Computing in Internet of Things.	<b>03</b>
	(b) Differentiate between IOT and M2M (Machine to Machine)	<b>04</b>
	(c) List and explain characteristics of IOT.	<b>07</b>
<b>Q.2</b>	(a) Write a short note on Raspberry Pi.	<b>03</b>
	(b) Differentiate between IoT and WSN.	<b>04</b>
	(c) Draw and Explain ATMEGA328P Microcontroller Pin diagram.	<b>07</b>
<b>OR</b>		
	(c) What is ARM? Explain special feature of ARM processor and block diagram.	<b>07</b>
<b>Q.3</b>	(a) Explain XMPP protocol in detail.	<b>03</b>
	(b) Give difference between MQTT and COAP protocols.	<b>04</b>
	(c) Draw and explain IPv4 Header.	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(a) Explain AMQP protocol in detail.	<b>03</b>
	(b) Differentiate between Zigbee and BLE.	<b>04</b>
	(c) Draw and explain IPv6 Header.	<b>07</b>
<b>Q.4</b>	(a) Explain the security challenges in IOT.	<b>03</b>
	(b) Discuss the implementation of street light automation system using IOT in your city.	<b>04</b>
	(c) Explain security architecture of IOT in detail with diagram.	<b>07</b>
<b>OR</b>		
<b>Q.4</b>	(a) Explain Various application of IoT in Food and Healthcare.	<b>03</b>
	(b) Discuss the implementation of Fire Prevention System using IOT in forest area.	<b>04</b>
	(c) Explain about Fog Computing. Justify the role of Fog Computing in IOT.	<b>07</b>
<b>Q.5</b>	(a) What is Sensor? List different types of Sensors used to develop IOT	<b>03</b>
	(b) Explain the difference between Microcontroller and Microprocessor.	<b>04</b>
	(c) Write Arduino Code to implement motion detection system for house.	<b>07</b>
<b>OR</b>		
<b>Q.5</b>	(a) Explain pinMode(), digitalRead() and digitalWrite () functions of Arduino.	<b>03</b>
	(b) Explain the difference between Sensors and Actuators.	<b>04</b>
	(c) Write Arduino Code to create automatic irrigation system.	<b>07</b>

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