P P SAVANI UNIVERSITY

Seventh Semester of B. Tech. Examination
November 2022
SECE4031 Internet of Things

24.11.2022, Thursday   Time: 10:00 a.m. To 12:30 p.m.   Maximum Marks: 60

Instructions:
1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

SECTION – I

			CO	BTL
Q - 1	MCQ/Short Question/Fill in the Blanks	[06]		
(i)	Raspberry Pi 4 uses which MPU? a) BCM2836 b) BCM2837 c) BCM2711 d) None		2	1
(ii)	Explain analogRead() function of Arduino.		2	2
(iii)	To establish serial communication between ESP8266 and Computer along with IDE, which protocol is used?		2	3
(iv)	NODEMCU has _____ microcontroller.		3	1
(v)	Define things in IoT.		1	2
(vi)	Sensor is a type of Transducer. (True/False)?		3	2
Q - 2	Discuss which challenges are present with IoT architecture and how it affects?	[06]	1	1,2
Q - 3	Which parameters needs to be kept in mind while developing IoT project, discuss in detail.	[06]	2,3	4
Q - 4	Enlist analog and digital sensors. How IoT can help improve product manufacturing and supply chain management.	[06]	3	2
Q - 5	Attempt any one.	[06]		
(i)	Program and interface of ____?____ sensor & enlist components to develop reverse parking system.		2,3	3,6
(ii)	Program and interface of ____?____ sensor & enlist components to develop anti-theft alarm system.		2,3	3,6

SECTION – II

			CO	BTL
Q - 1	MCQ/Short Question/Fill in the Blanks (Any Five)	[05]		
(i)	What is UUID?		4	1
(ii)	What is ZigBee?		4	1
(iii)	Write a difference between barcode vs RFID.		4	2
(iv)	NFC stands for _____.		4	1
(v)	What does QoS level indicate in MQTT protocol?		4	1
(vi)	How encryption techniques can be useful in case of IoT applications?		1,4	2
(vii)	Discuss IoT security considerations to handle the privacy concerns of IoT application.		1,4	2
Q - 2 (a)	How does RFID work? Draw and explain the working of RFID generic architecture for diverse applications.	[05]	2,4	1
Q - 2 (b)	What is Beacon and how it works? Explain various Challenges with Beacon Technology. **OR**	[05]	2,4	1
Q - 2 (a)	What is BLE? How does BLE communication work?	[05]	4	1
Q - 2 (b)	Write a note on various types of RFID tags available based on frequency range.	[05]	2,4	1

Q - 3 (a)	Write a note on Routing Protocol for Low-Power and Lossy Networks.	[05]	4	1
Q - 3 (b)	What is MQTT and how does it work?	[05]	4	2
	OR			
Q - 3 (a)	Write a note on Low Power Wide Area Network (LoRaWan).	[05]	4	1
Q - 3 (b)	Write a code to implement the data exchange and storage in cloud through MQTT protocol.	[05]	5	3
Q - 4	Attempt any one/two.	[05]		
(i)	Discuss IoT security architecture and its challenges.		4	1
(ii)	Discuss Dyn Botnet DDoS Attack in detail.		4	2

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CO : Course Outcome Number   BTL : Blooms Taxonomy Level

Level of Bloom's Revised Taxonomy in Assessment

| 1: Remember | 2: Understand | 3: Apply |
| 4: Analyze | 5: Evaluate | 6: Create |