B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL/MAY 2023

Sixth Semester

Electrical and Electronics Engineering

20EEPW601 – EMBEDDED SYSTEMS AND IoT WITH LABORATORY

(Regulations 2020)

Duration: 3 Hours   Max. Marks: 100

PART - A (10 × 2 = 20 Marks)
Answer ALL Questions

		Marks, K-Level,CO
1.	What is an embedded system? What are the components of an embedded system?	2,K1,CO1
2.	Compare between RISC and CISC.	2,K1,CO1
3.	Classify the IOT communication protocols.	2,K2,CO2
4.	What are the features of IIoT?	2,K2,CO2
5.	What is baud rate?	2,K1,CO3
6.	List out the serial bus communication protocols.	2,K1,CO3
7.	Define multitasking.	2,K1,CO4
8.	List the functions of a kernel.	2,K1,CO4
9.	What are autonomous vehicles?	2,K2,CO5
10.	What are the sensors used in plant growth?	2,K2,CO5

PART - B (5 × 13 = 65 Marks)
Answer ALL Questions

11.	a)	Explain the possible steps are involved in build process of embedded systems.	13,K2,CO1

OR

	b)	Discuss about	
		(i) In-circuit emulator.	7,K2,CO1
		(ii) Watch dog timer.	6,K2,CO1

12.	a)	Explain the IoT architecture and different layers of IoT.	13,K2,CO2

OR

	b)	Summarize sensors and actuators in IoT with diagram.	13,K2,CO2

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create   **11878**

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13. a) Illustrate the difference between serial communication protocols and mention their applications.   13,K2,CO3

OR

b) Describe the frame format and working of I2C protocol with features.   13,K2,CO3

14. a) Explain in detail about semaphores and its applications.   13,K2,CO4

OR

b) Discuss the preemptive multitasking models for task scheduling.   13,K2,CO4

15. a) Discuss in detail on IoT based smart irrigation with examples.   13,K2,CO5

OR

b) Develop a health care model for patient monitoring system using embedded systems and IoT.   13,K2,CO5

PART - C (1 × 15 = 15 Marks)

16. a) Three processes with process IDs P1,P2,P3 with estimated completion time 10,5,7 milliseconds respectively enters the ready queue together in the order P1,P2,P3.Calculate the waiting time and Turn Around Time(TAT) for each process and the average waiting time and Turn Around Time (Assuming there is no I/O waiting for the processes).   15,K3,CO4

OR

b) Develop a model of IoT based home automation systems.   15,K2,CO5