Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (NEW) EXAMINATION – SUMMER 2024

Subject Code:3161009 Date:24-05-2024

Subject Name:Embedded Systems

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)**	Give classification of Embedded systems.	**03**
	(b)	What is mean by embedded systems? What are the components of it? Give examples of embedded system.	**04**
	(c)	Explain USB Protocol in detail.	**07**
Q.2	**(a)**	List the down features of Bluetooth protocol.	**03**
	(b)	What is inter process communication? How it is done?	**04**
	(c)	Compare: IrDA, Wi-Fi and ZigBee.	**07**
		OR	
	(c)	Explain following: 1. Context and the Periods for Context Switching, 2. Interrupt Latency and Deadline	**07**
Q.3	**(a)**	List down the steps executed before handling an Interrupt in an embedded system.	**03**
	(b)	Describe the information required for writing a device driver.	**04**
	(c)	What is Semaphore? Write down advantages and disadvantages of semaphore.	**07**
		OR	
Q.3	**(a)**	List down the services provided by RTOS.	**03**
	(b)	Explain Earliest-Deadline First Scheduling.	**04**
	(c)	Write down various types of states of tasks? Explain them.	**07**
Q.4	**(a)**	Write down the features of an operating system.	**03**
	(b)	Give comparison between process and thread.	**04**
	(c)	What is multitasking? Differentiate between Preemptive and Cooperative Multitasking.	**07**
		OR	
Q.4	**(a)**	Discuss watch dog timer of MSP430.	**03**
	(b)	Write down advantages and disadvantages of RTOS.	**04**
	(c)	Describe Round-robin with interrupt mechanism for embedded software.	**07**
Q.5	**(a)**	Describe low power mode of MSP430.	**03**
	(b)	Describe the various sources of clock in MSP430 processor.	**04**
	(c)	List down various registers of MSP430 processor with their functions.	**07**
		OR	
Q.5	**(a)**	Explain: 1.RPC function 2.Socket function.	**03**
	(b)	Differentiate Clock driven and Event driven scheduling.	**04**
	(c)	Explain how the timers of MSP430 can be configured for PWM generation.	**07**

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