PRN:		Course Code:	ECE 306R1

Third Year **B. Tech** End Semester Examination Summer 2024

Embedded Systems

Day and Date: 25 MAY 2024, Sat Max Marks: **100**

Time: 02:00PM To 05:00PM Duration: **03** hrs

Instructions: All questions are compulsory.

			Marks	Bloom's Level	CO
Q.1		**Attempt the following**			
	a)	Elaborate the use of PINSEL and IODIR registers with example.	08	L4	CLO2
	b)	Explain the registers available for ADC in LPC2148.	08	L3	CLO2
		OR			
	b)	List and explain 8 features of LPC2148.	08	L3	CLO2
Q.2		**Attempt the following**			
	a)	Develop a program to turn OFF a relay connected to GPIO pin P1.16 when a switch connected to pin P0.20 is pressed	08	L4	CLO2
	b)	Write a program to display "Embedded System" on first line of LCD and "LPC2148" on second line of LCD.	08	L5	CLO2
		OR			
	b)	Develop a program to turn ON a relay connected to GPIO pin P0.20 when a switch connected to pin P0.8 is pressed	08	L5	CLO2
Q.3		**Attempt any two from the following**			
	a)	Elaborate the embedded system design issues.	08	L4	CLO1
	b)	Explain embedded software development process and tools.	08	L4	CLO1
	c)	Classify the types of Embedded Systems	08	L4	CLO1
Q.4		**Attempt any two from the following**			
	a)	Explain in detail ARM core data flow model.	08	L3	CLO1
	b)	Explain exceptions, interrupts and vector table in ARM core.	08	L3	CLO1
	c)	Illustrate any 4 ARM 7 assembly instructions with example.	08	L3	CLO1
Q.5		**Attempt any Two of the following**			
	a)	Discuss the role of USB hubs, bus topology, and the concept of host and device roles in a USB system.	09	L3	CLO3
	b)	Outline the steps involved in setting up the CAN bus, including network topology, node addressing, message framing, and error detection mechanisms.	09	L3	CLO3
	c)	Explain the steps involved in setting up the I2C bus, including the initialization sequence, addressing, and data transfer mechanisms.	09	L2	CLO3
Q.6		**Attempt any Two of the following**			
	a)	Comment on RTOS? Explain types of embedded software architectures.	09	L2	CLO4
	b)	What is a re-entrant function, explain with example? Also list the precautions that must be taken while using semaphores.	09	L3	CLO4
	c)	Explain the problem of shared data with example.	09	L3	CLO4

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