B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

June 2025 Semester End Main Examinations

Programme: B.E.   Semester: VI
Branch: Electronics & Telecommunication Engineering   Duration: 3 hrs.
Course Code: 22ET6PE2ES   Max Marks: 100
Course: Embedded System Design

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

			UNIT - I	CO	PO	Marks
1	a)		Analyse the basic HW components of an ES with a block diagram	CO2	PO1	**07**
	b)		Analyze an Industry Standard Embedded System Design and Development Lifecycle Model	CO2	PO1	**07**
	c)		Analyze the Importance of the Powering Section in Embedded System Design	CO2	PO1	**06**
			OR			
2	a)		Design and Explain a Watchdog Timer (WDT) for Embedded Systems	CO3	PO2	**07**
	b)		Analyze and Design Applications of Embedded Systems such as Motor Control Systems	CO2	PO1	**07**
	c)		Discuss the Rules to be Followed in Hardware Schematic Design for Embedded Systems	CO2	PO1	**06**
			UNIT - II			
3	a)		Analyze the Instruction-Level Parallelism ISA-MIPS Pipeline Architecture and Instruction Flow	CO3	PO2	**10**
	b)		Design a circuit to interface 8K ROM to an 8-bit microcontroller with 16 bit addressing lines.	CO4	PO3	**10**
			OR			
4	a)		An 8-bit microcontroller uses 16 bit addressing lines. Design a circuit to interface 24K RAM.	CO4	PO3	**10**
	b)		Illustrate and Discuss External Memory Management by a Memory Controller	CO2	PO1	**10**
			UNIT - III			
5	a)		Illustrate and Compare Serial vs. Parallel I/O, Analyzing Applications of Each	CO3	PO2	**10**
	b)		Analyze and Explain the Interfacing of an I/O Device with an Embedded Board and I/O Controller with Master CPU	CO3	PO2	**10**

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

			OR			
	6	a)	Illustrate Communication over I2C Protocol with Timing Cycles and List Its Features	*CO2*	*PO1*	**10**
		b)	Analyze Features and Applications of CAN Protocol	*CO3*	*PO2*	**10**
			UNIT IV			
	7	a)	In detail analyze the need for BSPs (Board Support Packages)	*CO4*	*PO3*	**10**
		b)	In detail analyze the need for POSIX standard and its significance	*CO4*	*PO3*	**10**
			OR			
	8	a)	Identify and analyze Common Functions of a Device Driver	*CO3*	*PO2*	**10**
		b)	Analyze and Discuss Implementation Criteria for Device Drivers in Interrupt Handling	*CO3*	*PO2*	**10**
			UNIT - V			
	9	a)	Illustrate and Analyze an Application Layer within an Embedded Systems Model	*CO3*	*PO2*	**10**
		b)	Analyze Development Tools and their Utility in Writing Code in an IDE	*CO3*	*PO2*	**10**
			OR			
	10	a)	Analyze the System Boot-Up Process	*CO3*	*PO2*	**10**
		b)	Develop Pseudocode for a Device Driver for an I2C Controller	*CO4*	*PO3*	**10**

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