CBCS SCHEME

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BETCK205J

Second Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025
Introduction to Embedded Systems

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	What is embedded system? With an example explain various purpose of embedded system.	8	L2	CO1
	b.	Explain the concept fo Harvard and Von-Neumann architecture.	4	L2	CO1
	c.	Explain the following : i) 7 segment display ii) Relay.	8	L2	CO1
		OR			
Q.2	a.	List the differences between : i) Microcontroller and microprocessor ii) RISC and CISC.	8	L2	CO1
	b.	Briefly explain the classification of embedded system based on generation.	6	L2	CO1
	c.	Explain the concept of I2C communication.	6	L2	CO1
		Module – 2			
Q.3	a.	List and explain the characteristics of an embedded system.	10	L2	CO2
	b.	Explain the non-operational quality attributes of embedded system.	10	L2	CO2
		OR			
Q.4	a.	Illustrate the applications specific aspect of embedded system with an example of washing machine.	10	L3	CO2
	b.	Explain the operational quality attributes of an embedded system.	10	L2	CO2
		Module – 3			
Q.5	a.	What is hardware software co-design? Explain the fundamental issues in hardware software co-design.	10	L2	CO3
	b.	Explain and design a finite state machine model for automatic seat belt system.	10	L3	CO3
		OR			
Q.6	a.	With truth table and block diagram explain : i) 8 : 1 Mux ii) 3 : 8 Decoder.	10	L2	CO3
	b.	With diagram illustrate the VLSI and integrated circuit design of embedded system.	10	L3	CO3

Module – 4					
Q.7	**a.**	Explain super loop based approach in embedded firmware design.	**8**	**L2**	**CO4**
	b.	Explain the advantage and limitations of simulator-based debugging.	**6**	**L2**	**CO4**
	c.	With a neat diagram, explain the assembly language to hex file translation.	**6**	**L2**	**CO4**
OR					
Q.8	**a.**	What are the different files generated during the cross complication of an embedded C file?	**8**	**L2**	**CO4**
	b.	Explain In.circuit Emulator based firmware debugging.	**6**	**L2**	**CO4**
	c.	What are the advantages and limitations of high-level language based development.	**6**	**L2**	**CO4**
Module – 5					
Q.9	**a.**	What is operating system? Explain the architecture of operating system.	**10**	**L2**	**CO5**
	b.	With a neat diagram explain the concept of task scheduling.	**10**	**L2**	**CO5**
OR					
Q.10	**a.**	What is process explain the structure of a process.	**8**	**L2**	**CO5**
	b.	With example explain hard real time system and soft real time system.	**6**	**L2**	**CO5**
	c.	List the difference between multiprocessing and multitasking.	**6**	**L2**	**CO5**

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