CBCS SCHEME

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BETCK205J/ BETCKJ205

Second Semester B.E./B.Tech. Degree Examination, June/July 2023
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.	Explain the classification of embedded systems.	8	L2	CO1
	b.	What is Embedded systems? Mention the purpose of Embedded systems.	6	L1	CO1
	c.	Compare general purpose computing system and embedded system.	6	L2	CO1
		OR			
Q.2	a.	What is ASICs? Mention its advantages.	6	L1	CO1
	b.	List the application areas of embedded system.	7	L1	CO1
	c.	What is external communication interfaces? Mention various interfaces.	7	L2	CO1
		Module – 2			
Q.3	a.	Explain the important characteristics of an embedded system.	10	L2	CO2
	b.	Explain the operational quality attributes of embedded system.	10	L2	CO2
		OR			
Q.4	a.	Explain the different communication buses used in automotive applications.	8	L2	CO2
	b.	Explain the different electronic control units used in automotive system.	8	L3	CO2
	c.	Mention the key players of the automotive embedded market.	4	L1	CO2
		Module – 3			
Q.5	a.	Illustrate the fundamental issues in hardware software co-design.	10	L2	CO3
	b.	Explain the following FSM model: i) Automatic seat belt warning system ii) Timer.	10	L2	CO3
		OR			
Q.6	a.	Explain the role of the analog electronic components resistor, transistor, capacitor and diode in embedded hardware design.	8	L2	CO3
	b.	What is latch? Illustrate the usage of latches in addressing latching.	8	L2	CO3
	c.	List the various integration of ICs.	4	L1	CO3

		Module – 4			
Q.7	a.	Explain the super loop based approach for embedded firmware design.	8	L2	CO4
	b.	Mention the advantages and drawbacks of Assembly Language based Development.	6	L1	CO4
	c.	Explain the techniques for mixing assembly with 'C'.	6	L2	CO4
		OR			
Q.8	a.	Explain the various details held by a list file generated during the process of cross-compiling an embedded 'C' project.	10	L2	CO4
	b.	What is Object File? Mention the details stored in an object file.	6	L1	CO4
	c.	Write the advantages of simulator based debugging.	4	L1	CO4
		Module – 5			
Q.9	a.	Draw the basic operating system architecture and explain it.	10	L2	CO5
	b.	Mention the basic functions of a real time kernel.	5	L1	CO5
	c.	Mention the contents of task control block.	5	L1	CO5
		OR			
Q.10	a.	What is Process? Explain the structure of a process.	8	L2	CO5
	b.	Describe the various factors to be considered for the selection of a scheduling criteria.	8	L2	CO5
	c.	What is Multitasking? Mention its types.	4	L1	CO5

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