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Sixth Semester B.E./B.Tech. Degree Examination, June/July 2025

Embedded System Design

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.	Compare between general purpose Computing system and Embedded system.	06	L2	CO1
	b.	Explain the classification of Embedded systems based on Generation and Complexity and performance requirements.	08	L2,5	CO1
	c.	Give an outline on major application areas of Embedded system.	06	L2	CO1
OR					
Q.2	a.	Explain with neat block diagram elements of Embedded system.	06	L2,5	CO1
	b.	Summarize the classification of program storage memory.	08	L2	CO1
	c.	Explain I2c Buss Interfacing with a neat sketch.	06	L2,5	CO1
Module – 2					
Q.3	a.	Explain the characteristics of Embedded system.	10	L2,5	CO1
	b.	Discuss washing machine as an application specific Embedded system with functional block diagram.	10	L2,5	CO1
OR					
Q.4	a.	Explain Automotive Communication Buses in Embedded system.	08	L2,5	CO1
	b.	Explain operational and non operational quality attributes of Embedded system.	12	L2,5	CO1
Module – 3					
Q.5	a.	Explain the fundamental Issues in hardware software Co-Design.	10	L2,5	CO3
	b.	Explain 8 to 3 Encoder IC and Input / Output signal states with truth table.	05	L2,5	CO3
	c.	Summarize Analog and Mixed signal design in VLSI and Integrated circuit design.	05	L2	CO3
OR					
Q.6	a.	Define flip-flops. Explain S – R flip-flop with truth table and logic circuit.	05	L1,2,5	CO3
	b.	Explain 8 to 1 multiplexer IC and Input / Output signal states with Truth table.	05	L2,5	CO3
	c.	List the different computational model in Embedded system. Explain the DFG model and CDFG model.	10	L1,2,5	CO3
Module – 4					
Q.7	a.	What are the 2 basic approaches used for embedded firmware design. Explain super loop based Approach.	06	L1,2,5	CO4
	b.	Explain the types of files generated on cross - compilation.	08	L2,5	CO4
	c.	Explain the advantages of high level language based development.	06	L2,5	CO4

OR

Q.8	a.	Explain Monitor Program based firmware Debugging with neat sketch.	06	L2,5	CO4
	b.	Explain Assembly language to machine language conversion process with neat block diagram.	08	L2,5	CO4
	c.	Explain Disassembler /Decompiler in Embedded System.	06	L2,5	CO4

Module – 5

Q.9	a.	Explain operating system basics in Embedded system.	08	L2,5	CO2,5
	b.	Explain process states and state transition in Embedded system with block diagram.	06	L2,5	CO2,5
	c.	Explain types of Multitasking in Embedded system.	06	L2,5	CO2,5

OR

Q.10	a.	Elaborate Pre-emptive scheduling in Embedded system.	08	L2,5	CO2,5
	b.	Explain the types of operating systems in embedded system.	06	L2,5	CO2,5
	c.	Explain Round Robin scheduling with block diagram.	06	L2,5	CO2,5
