CBCS SCHEME

USN ☐☐☐☐☐☐☐☐☐☐

BEE613B

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 strates 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**

* * * * *