Basavarajeswari Group of Institutions

2022 SCHEME

BALLARI INSTITUTE OF TECHNOLOGY & MANAGEMENT

(Autonomous Institute under Visvesvaraya Technological University, Belagavi)

USN										

Course Code | 2 | 2 | E | C | 6 | 4 | 2 |

Sixth Semester B.E. Degree Examinations, June/July 2025

EMBEDDED SYSTEM DESIGN

Duration: 3 hrs **Max. Marks: 100**

Note: ***1. Answer any* FIVE *full questions, choosing* ONE *full question from each module.***
2. Missing data, if any, may be suitably assumed

Q. No		*Question*	*Marks*	*(RBTL:CO: PI)*
		Module-1		
1.	**a.**	With a block diagram, explain the microprocessor based embedded system.	**10**	**(2:1:1.6.1)**
	b.	Identify and describe the major blocks of embedded hardware core and a typical bus structure comprising address, data and control signal.	**10**	**(2:1:1.6.1)**
		(OR)		
2.	**a.**	List and explain the classification of real time embedded system with examples.	**10**	**(2:1:1.6.1)**
	b.	With the neat flow chart, explain the process of embedded system design and development.	**10**	**(2:1:1.6.1)**
		Module-2		
3.	**a.**	List and explain the different classification of memory.	**10**	**(2:2:1.6.1)**
	b.	With the neat circuit and timing diagram, explain the SRAM overview.	**10**	**(2:2:1.6.1)**
		(OR)		
4.	**a.**	With the neat circuit and timing diagram, explain the inside and outside overview of ROM.	**10**	**(2:2:1.6.1)**
	b.	Explain the general memory interface with a neat block diagram of the array of simple memory model.	**10**	**(2:2:1.6.1)**
		Module-3		
5.	**a.**	Differentiate between embedded and general computing system. List the major application area of embedded system.	**10**	**(2:3:1.6.1)**
	b.	With the neat interface diagram, explain on-board I^2C communication bus.	**10**	**(2:3:1.6.1)**
		(OR)		
6.	**a.**	Differentiate between (i) Microprocessor and Microcontroller (ii) Harvard and Von-neumann architecture	**10**	**(2:3:1.6.1)**

Note: (RBTL - Revised Bloom's Taxonomy Level: CO - Course Outcome: PI– Performance Indicator)

	b.	Explain the concept of load-store operation and instruction pipelining with architecture.	**10**	**(2:3:1.6.1)**

Module-4

7.	**a.**	With the neat diagram, explain waterfall life- cycle model.	**10**	**(2:4:1.6.1)**
	b.	Explain a successful design steps for a problem design.	**10**	**(2:4:1.6.1)**

(OR)

8.	**a.**	Explain the formulating the requirement and the system design specification.	**10**	**(2:4:1.6.1)**
	b.	With the neat diagram, explain the spiral life- cycle model.	**10**	**(2:4:1.6.1)**

Module-5

9.	**a.**	Explain a model of a single process and multiple process.	**10**	**(2:5:1.6.1)**
	b.	Differentiate between (i) Process and Threads (ii) Program and Process	**10**	**(2:5:1.6.1)**

(OR)

10.	**a.**	Define threads. With a neat block diagram, explain a single thread and multiple threads.	**10**	**(2:5:1.6.1)**
	b.	Explain operating system of virtual machine model and typical high level operating system architecture.	**10**	**(2:5:1.6.1)**

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