Basavarajeswari Group of Institutions

BALLARI INSTITUTE OF TECHNOLOGY & MANAGEMENT

(Autonomous Institute under Visvesvaraya Technological University, Belagavi)

USN										

Course Code	2	1	E	C	6	5	2

Sixth Semester B.E. Degree Examinations, Sep/Oct 2024

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 the neat flow chart, Explain the process of Embedded system design and development.	**10**	(2:1:1.6.1)
	b	Briefly explain the three kind of computing engine that are utilized in embedded system.	**10**	(2:1:1.6.1)
		OR		
2.	**a**	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)
	b	What is an instruction? Explain the Action included in instruction with some common instruction.	**10**	(2:1:1.6.1)
		MODULE – 2		
3.	**a**	Define memory? Explain the classification of memory.	**10**	(2:2:1.6.1)
	b	With the neat circuit and timing diagram, explain the ROM Overview.	**10**	(2:2:1.6.1)
		OR		
4.	**a**	With the neat circuit and timing diagram, explain the SRAM Overview	**10**	(2:2:1.6.1)
	b	Define the following Terminologies a. The access time b. The cycle time c. Block Size d. Latency e. Block Access Time f. Page	**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 onboard I2C communication bus	**10**	(2:3:1.6.1)
		OR		
6.	**a**	Describe the elements of an embedded system with a block diagram.	**10**	(2:3:1.6.1)
	b	Differentiate between i). Microprocessor and Microcontroller ii). Harvard and Von-Neumann architecture	**10**	(2:3:1.6.1)
		MODULE – 4		
7.	**a**	Explain the steps in detail, that comprise the V-life cycle model.	**10**	(2:4:1.6.1)
	b	Briefly explain the five steps to a successful design	**10**	(2:4:1.6.1)

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

OR

8.	**a**	Differentiate between i). Functional versus Architectural Design ii). System specification versus system requirements	**10**	(2:4:1.6.1)
	b	Define life cycle model and its objectives. With the neat diagram, explain waterfall life- cycle model	**10**	(2:4:1.6.1)

MODULE – 5

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

OR

10.	**a**	Differentiate between i). Process and Threads ii). Program and process	**10**	(2:5:1.6.1)
	b	With a model explain a single process and multiple process. Explain the various factors to be considered for selection of a scheduling criteria.	**10**	(2:5:1.6.1)

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