

**15EC62**

Visvesvaraya Technological University, Belagavi

MODEL QUESTION PAPER – Set II

6<sup>th</sup> Semester, B.E (CBCS) ECE

Course: 15EC62- ARM Microcontroller and Embedded Systems

Time: 3 Hours

Max. Marks: 80

**Note: (i) Answer Five full questions selecting any one full question from each Module.****(ii) Question on a topic of a Module may appear in either its 1st or/and 2nd question.**

		<b>Module-1</b>	<b>Marks</b>
1	a	Explain the architecture of ARM Cortex-M3 processor with the help of a neat block diagram.	10M
	b	List the applications of ARM Cortex-M3 processor.	06M
		<b>OR</b>	
2	a	Explain ARM Cortex-M3 Program Status Register in detail.	08M
	b	Explain Stack PUSH and POP operation in Cortex-M3 with the help of a neat diagram.	04M
	c	Explain reset sequence with the help of memory map.	04M
		<b>Module-2</b>	
3	a	Explain the following instructions with example i)ASR ii)LSL iii)ROR iv)REV	08M
	b	List and explain the function of any four data processing and branch instructions in Cortex- M3 with example.	08M
		<b>OR</b>	
4	a	Write a note on the interface between assembly and C.	04M
	b	Explain any two methods of accessing memory mapped registers in C.	08M
	c	List and explain the function of any four commonly used memory access instructions in Cortex- M3	04M
		<b>Module-3</b>	
5	a	Explain the components of typical Embedded Systems in detail.	08M
	b	Give the memory classification. Explain the SRAM cell implementation with relevant	

		figures.	08M
		<b>OR</b>	
6	a	Explain the different on-board communication interfaces in brief.	08M
	b	Differentiate between computer system and an Embedded System.	08M
		<b>Module-4</b>	
7	a	Explain the different characteristics of Embedded System in detail.	08M
	b	What is operational quality attribute? Explain the important non- operational quality attributes to be considered in any Embedded System design.	08M
		<b>OR</b>	
8	a	Explain the different Embedded firmware design approaches in detail.	08M
	b	What is Hardware and Software co-design? Explain the fundamental design approaches in detail.	08M
		<b>Module-5</b>	
9	a	Explain Multi processing, multi tasking and multi programming.	08M
	b	What the basic functions of real time kernel? Explain each	08M
		<b>OR</b>	
10	a	Explain the Simulator and Emulator.	08M
	b	Explain the terms process, task and thread	08M

**Note: In the updated syllabus ‘Bus Interface’ topic in Module-2 has been replaced with ‘Bit-band operations’.**

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