Question Paper Code	**11985**

1 2 JUL 2023

M.E. / M.Tech. - DEGREE EXAMINATIONS, APRIL/MAY 2023
Second Semester
M.E. – Embedded Systems Technologies
20PESPC203 – RISC PROCESSOR ARCHITECTURE AND PROGRAMMING
(Regulations 2020)

Duration: 3 Hours   Max. Marks: 100

PART - A (10 × 2 = 20 Marks)
Answer ALL Questions

		Marks, K-Level, CO
1.	Give the differences between RISC and CISC.	*2,K1,CO1*
2.	List out the important features of watchdog timer control register.	*2 K1,CO1*
3.	What are ARM exceptions?	*2 K1,CO2*
4.	Explain the term ARM7TDMI.	*2 K2,CO2*
5.	Review the properties of thumb and infer its performance.	*2 K2,CO3*
6.	What is the use of barrel shifter?	*2 K1,CO3*
7.	Name the interrupt handling schemes used in ARM.	*2 K1,CO4*
8.	Write the purpose of fast context switch.	*2 K1,CO4*
9.	How to Initialize the MPU?	*2 K1,CO5*
10.	State the difference between memory protection unit and memory management unit.	*2 K1,CO5*

PART - B (5 × 13 = 65 Marks)
Answer ALL Questions

11.	a)	Explain the addressing modes of AVR Microcontroller with suitable examples.	*13,K2,CO1*
		OR	
	b)	Explain how ADC and DAC interfaced with AVR Microcontroller.	*13,K2,CO1*
12.	a)	Explain 5 stage pipeline ARM organization. Enumerate its deviation from that of three stage pipeline.	*13,K2,CO2*
		OR	
	b)	In ARM architecture, how is the shifting of multiple bits performed in one clock cycle? Discuss the various instruction set of ARM.	*13,K2,CO2*
13.	a)	Explain the function of coprocessor registers C1, C2, C5 and C6 that control ARM memory processing unit.	*13,K2,CO3*

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create   **11985**

OR

b) Explain the Thumb Multiple-Register Load-Store Instructions with examples.   13,K2,CO3

14. a) Develop an application using ARM to implement IIR of any signal.   13,K2,CO4

OR

b) Describe Reentrant interrupt Handler and Prioritized simple interrupt Handler.   13,K2,CO4

15. a) Explain about translation look aside buffer with a neat diagram.   13,K2,CO5

OR

b) How are the caches and write buffer for a page configured? Explain with required table.   13,K2,CO5

PART - C (1 × 15 = 15 Marks)

16. a) Explain in detail about the Hamming Code process in ARM Microcontroller with an example.   15,K2,CO6

OR

b) Demonstrate the subroutine call and its application in ARM Microcontroller.   15,K2,CO6