Reg No.:_____   Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Sixth semester B.Tech degree examinations (S), September 2020

Course Code: AE308
Course Name: ADVANCED MICROPROCESSORS

Max. Marks: 100   Duration: 3 Hours

PART A
Answer any two full questions, each carries 15 marks.
Marks

1	a)	Explain with neat sketch, the three stage pipeline mechanism in ARM. Also explainhow the total execution time get reduced with pipelining	(10)
	b)	List the difference between RISC and CISC architectures.	(5)
2	a)	What are the features that make the ARM instruction set different from the pure RISC?	(5)
	b)	Briefly explain ARM nomenclature.	(5)
	c)	Compare ARM Processor family.	(5)
3	a)	Define CPSR and SPSR. Draw the format of CPSR and explain the contents in detail.	(10)
	b)	Briefly explain the general purpose registers available in ARM.	(5)

PART B
Answer any two full questions, each carries 15 marks.

4	a)	Which are the basic data types used in C programming?	(5)
	b)	Write a C program to find the factorial of a number given by user.	(10)
5	a)	What are assembler directives AREA, RN and EQU? Give the syntax of each.	(5)
	b)	Draw the flow chart for transferring 128 bytes of data from register to memory. Write an assembly language program to perform this transfer.	(5)
	c)	Explain different looping structures used in C programming.	(5)
6	a)	Write an assembly language program for swapping register contents and explain it with flow chart.	(5)
	b)	Explain the instruction set of ARM in detail. Support your answer with suitable examples.	(10)

PART C
Answer any two full questions, each carries 20 marks.

7	a)	How mapping a task in virtual memory to physical memory is done in ARMcore?	(10)

b) Explain the concepts of page tables. What is its significance in multiprocessing? (10)

8 a) Explain the advanced microprocessor bus architecture system in detail with suitable sketches. (15)

b) Explain the advantages of cache memory in ARM microcontroller. (5)

9 a) Define a TLB. Explain the function of TLBs. (5)

b) What are the ARM exceptions and associated modes? (5)

c) Explain the exception handling mechanism in ARM processor (10)

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