Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SIXTH SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018

Course Code: AE 308

Course Name: ADVANCED MICROPROCESSORS (AE)

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks.

1 a) What is pipelining in ARM processor? What is the difference in pipelining in ARM7 and ARM9? (8)

b) What is the format for CPSR? How should an instruction be modified in order to update the contents of CPSR after its execution? (5)

c) What are the two operating states of ARM7TDMI processor? (2)

2 a) Define assembler directives. Explain the directives and attributes in the following example: **AREA MY_ASM_PROG1, CODE, READONLY** (7)

b) Describe the evolution of ARM processor from Acorn Ltd. (5)

c) Which are the different data types supported by ARM? Give details of each with schematics. (3)

3 a) Which are the condition code flags in ARM Current Program Status Register? (10)

b) Which are the different system modes in ARM visible registers? (5)

PART B

Answer any two full questions, each carries 15 marks.

4 a) Compare rotate and shift operation with supporting examples. (15)

5 a) Enlist various C looping structures. (5)

b) What is the difference between Branch and 'Branch with link' instructions? (5)

c) What is the difference between (a) ADD r0,r1,r2 and (b) ADDS r0,r1,r2. (5)

6 a) List the registers used as argument registers and general purpose registers as per ARM procedure call standard. (8)

b) What is the use of Software Interrupt Instructions? (4)

c) Mention the advantages of Thumb instruction set over ARM instruction set. (3)

PART C

Answer any two full questions, each carries 20 marks.

7 a) How is mapping a task in virtual memory to physical memory using a relocation register done? Explain with an example. (7)

b) How is multitasking achieved with the help of ARM Memory Management Unit? (8)

	c)	What is meant by a Prefetch Abort Exception? On entry to the prefetch abort exception, can IRQ or FIQ exceptions be handled?	(5)
8	a)	List the order of priority in which exceptions are handled in ARM	(8)
	b)	What happens to the CPSR during an exception? How is it restored?	(7)
	c)	When an exception occurs, what are the changes that occur in the content of the link register?	(5)
9	a)	Draw a AMBA based microcontroller and describe in detail the functions of high performance bus AHB/ASB and the peripheral bus APB.	(20)

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