Seat No.:	Enrolment No.
-----------	---------------

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER I (NEW) – • EXAMINATION – SUMMER 2016

Subject Code: 2715401 Date:17/05/			.016
	•	Name: ARM Processor Architecture and System Design	••
	me:02 truction	2:30 pm to 05:00 pm Total Marks: 7	70
HIS	1. 2. 3.	Attempt all questions. Make suitable assumptions wherever necessary.	
Q.1	(a)	 Describe the differences between CISC and RISC CPU architectures. Which instruction is used to switch from THUMB mode to ARM mode? What is the significance of SVC mode in ARM CPU? Why ARM is called Load-store architecture? What is difference between Pre-indexed and Post indexed addressing mode? Encode the "MLA" instruction. List the flags of CPSR register. 	07
	(b)	Explain in detail ARM 3-stage pipelining.	07
Q.2	(a) (b)	Explain all the operating modes supported in ARM CPU. Explain the ARM development tools.	07 07
	(b)	OR Explain ABM Addressing modes in Detail	07
	(b)	Explain ARM Addressing modes in Detail.	07
Q.3	(a) (b)	Write an ARM assembly language program to count the number of negative values in a table of 32 bit numbers. Explain different types of pipeline stalls with their appropriate solutions.	07 07
	(0)	OR	U/
Q.3	(a)	Write an ARM assembly language program to perform the addition of two 64 bit numbers using subroutine.	07
	(b)	Explain the following ARM7 instructions with suitable example: (a) SMLAL (b) LDMIA (c) RRX	07
Q.4	(a)	Explain the ARM bus structure with appropriate diagram indicating the role of different buses.	07
	(b)	 Explain the use of Memory accelerator module in LPC2148. Describe all registers of GPIO module in LPC2148. OR 	07
Q.4	(a)	Write a short note on LPC2000 interrupt system.	07
	(b)	 What is function of Boot loader in LPC2148? Explain A to D control register in LPC2148. 	07
Q.5	(a)	How PWM is used as a dual edge PWM wave? Write an Embedded C program to generate dual edge PWM.	07
	(b)	How many UART are in LPC2148? Explain the steps for serial communication using UART.	07
0 -	()	OR	
Q.5	(a) (b)	Describe the characteristics of CAN bus with its applications. Explain all the modes of operation associated with SPI bus in LPC 2148.	07 07
