

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– VI (New) EXAMINATION – WINTER 2019****Subject Code: 2161102****Date: 09/12/2019****Subject Name: Advanced Microprocessor****Time: 02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q1** (a) Explain difference between Harvard & Von-Neumann Architecture. **3**
- (b) Explain CPSR Register. **4**
- (c) Draw and explain ARM development tool. **7**
- Q2** (a) Describe Software Interrupt instruction with example. **3**
- (b) Explain STACK related instructions. **4**
- (c) Write a note on RISC Design Philosophy. List the features rejected from RISC Design for improved ARM Design. **7**
- OR
- (c) Explain following ARM instruction with example: **7**
- 1) RSB 2)CMN 3)LDR 4)BGT 5)UMULL 6)EORS 7)SWAPB
- Q3** (a) Write a note on Arithmetic operators in C language. **3**
- (b) Write a C program to toggle led which is connected to pin 30 of LPC 2148 **4**
- (c) List the properties of Thumb Instruction Set. Write a note on Thumb Implementation **7**
- OR
- Q3** (a) Define delayed branch. **3**
- (b) What is conditional execution? What are the mnemonics extension codes used for conditional execution? Explain with example **4**

- (c) Draw interfacing diagram of one CA seven segment on port 0.0 to 0.7. 7
Write a C program to display A to F with some time delay.
- Q4** (a) Explain exception handling in ARM processor. 3
- (b) What is Memory Management Unit (MMU)? In which circumstances the processor architecture include MMU in the design? 4
- (c) Describe the operating modes in ARM processor. 7
- OR
- Q4** (a) Describe ARM optimization techniques. 3
- (b) Write a note on virtual memory. 4
- (c) Write a short note on instruction set design. 7
- Q5** (a) Describe the concept of Multitasking. 3
- (b) Define cache memory. Explain the importance of cache memory. 4
- (c) Explain shift instruction with example. 7
- OR
- Q5** (a) Write a difference between ARM instruction set and thumb instruction set. 3
- (b) Draw and explain interfacing Diagram of relay with LPC 2148. 4
- (c) Compare AHB, ASB & APB buses of AMBA Bus system of ARM Architecture. 7
