**Seat No.: _____** **Enrolment No._____**

# GUJARAT TECHNOLOGICAL UNIVERSITY

**BE - SEMESTER–VII (NEW) - EXAMINATION – SUMMER 2017**

**Subject Code: 2171711** **Date: 09/05/2017**

**Subject Name: Embedded System Design(Departmental Elective - II)**

**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.**

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|---|---|---|---|
| **Q.1** | **(a)** | What is "Embedded System"? Compare Embedded System Vs. General Computing Systems. | **07** |
| | **(b)** | Compare CISC and RISC processors in detail. | **07** |
| **Q.2** | **(a)** | What is ARM processor? Draw and explain the architecture of ARM processor. | **07** |
| | **(b)** | Explain AMBA for ARM processor with suitable diagram. | **07** |
| | | **OR** | |
| | **(b)** | Explain modes of operation for ARM processor with suitable diagram. | **07** |
| **Q.3** | **(a)** | With suitable example explain Arithmetic, Logical, Data Transfer and Branching instructions. (At least two instructions for each type) | **07** |
| | **(b)** | Explain single register load –store and multiple register data transfer in ARM processor | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | Explain I2C Communication protocol. | **07** |
| | **(b)** | Write a program using "C" language for ARM controller LPC2148 to blink all LEDs connected on port 0 (P0.0 to P0.30). | **07** |
| **Q.4** | **(a)** | Explain the concept of "Task", "Thread" and "Process" in the context of operating system. | **07** |
| | **(b)** | Explain the concept of ISR under RTOS. | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | Explain USB Communication protocol. | **07** |
| | **(b)** | Compare 8051, PIC, ARM and AVR microcontrollers. | **07** |
| **Q.5** | **(a)** | Explain PCI Bus communication protocol. | **07** |
| | **(b)** | Explain in brief any two applications of Embedded system in Instrumentation Engineering. | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | What is RTOS? Explain RTOS architecture. | **07** |
| | **(b)** | Explain CAN Protocol. | **07** |

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