

**GUJARAT TECHNOLOGICAL UNIVERSITY****M. E. - SEMESTER – I • EXAMINATION – SUMMER • 2013****Subject code: 715203****Date: 06-06-2013****Subject Name: Embedded Systems Software Design****Time: 10.30 am – 01.00 pm****Total Marks: 70****Instructions:**

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

- Q.1** (a) List out Embedded System constraints and Embedded System application in different area. Explain in brief. **07**  
(b) Explain Harvard and Von Neumann Architecture in detail. **07**
- Q.2** (a) Write down the require specifications of DAC and explain in brief. **07**  
(b) Explain Successive Approximation Register ADC. **07**

**OR**

- (b) Explain operation of R-2R ladder DAC. **07**
- Q.3** (a) Explain prototyping and its challenges. **07**  
(b) Differentiate between C language and Embedded C. **07**

**OR**

- Q.3** (a) Justify the difference between RISC and CISC in context to architecture, execution time, program length and interrupt latency. **07**  
(b) Explain Serial Peripheral Interface protocol. **07**
- Q.4** (a) Describe the addressing mode of 8051 with instruction. **07**  
(b) List the 8051 interrupts and explain interrupt process execution. **07**

**OR**

- Q.4** (a) Explain the internal RAM structure of 8051. **07**  
(b) Mention the steps to interface LCD with microcontroller. **07**
- Q.5** (a) Which are the processor modes in ARM? Explain in detail. **07**  
(b) Explain branch instructions of ARM processor in brief. **07**

**OR**

- Q.5** (a) Explain Load and Store ARM instructions in detail. **07**  
(b) Explain ARM 5-stage pipeline execution process. **07**

\*\*\*\*\*