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06EE756

**Seventh Semester B.E. Degree Examination, December 2010**  
**Embedded Systems**

Time: 3 hrs.

Max. Marks:100

*Note: Answer any FIVE full questions, selecting  
at least TWO questions from each part.*

**PART – A**

- 1 a. Classify the embedded systems and explain the skills required for an embedded system designer. (10 Marks)
- b. Describe the architectural features of a 68HC11, with the help of a block diagram. (10 Marks)
- 2 a. Explain any 5 different addressing modes of a 68HC11 microcontroller, with an example for each. (10 Marks)
- b. Compare the characteristics of different memories, used in embedded systems. (07 Marks)
- c. Explain the condition code registers of 68HC12. (03 Marks)
- 3 a. How do you interface an internal ADC in 68HC11? Explain. (08 Marks)
- b. Discuss the need of sample and hold circuit and explain its operation. (06 Marks)
- c. Explain the need and method of sampling a signal in design a Data Acquisition System (DAS). (06 Marks)
- 4 a. Explain the software – hardware trade off. What are the advantages and disadvantages of software implementation instead of hardware implementation? (10 Marks)
- b. Explain the performance modeling in embedded system design. (10 Marks)

**PART – B**

- 5 a. Discuss the issues related to selecting a particular software architecture, for an embedded system. (06 Marks)
- b. Explain with an example, the round – robin architecture, with interrupts. (08 Marks)
- c. Explain C language program elements. (06 Marks)
- 6 a. What are the services provided by an operating system, in real time applications? Differentiate between an operating system and RTOS. (10 Marks)
- b. Explain the RTOS task scheduling models. (10 Marks)
- 7 a. Design a circuit to interface a 4 x 4 matrix key board to the processor 68HC11. Explain the software method to implement key debounce. (10 Marks)
- b. Draw the neat circuit and explain the interfacing external RAM with 68HC11 in expanded mode. (10 Marks)
- 8 a. Draw the neat circuit and explain the interfacing of seven segments LED. (12 Marks)
- b. What do you mean by plug and play devices? Explain the working of USB bus. (08 Marks)

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