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10EE665

Sixth Semester B.E. Degree Examination, Dec.2016/Jan.2017
Embedded Systems

Time: 3 hrs.

Max. Marks:100

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

PART – A

- 1 a. Discuss the skills required for designing different types of embedded systems. (06 Marks)
b. Explain the registers of 6808 and 6811 microcontrollers. (06 Marks)
c. Explain single chip mode of operation of 6811 microcontroller. Also explain the expanded mode of operation giving the block diagram of the EVB system. (08 Marks)
- 2 a. Compare the characteristics of different types of ROMs used in embedded systems. (07 Marks)
b. Discuss the issues to be considered when designing a cordless bar code scanner. (03 Marks)
c. Explain the working of a 3bit unsigned and signed DAC using R-2R ladder network. (10 Marks)
- 3 a. Explain any two software methods used for generating analog waveforms. (08 Marks)
b. With neat figures, explain working of an 8 bit Ramp ADC. (06 Marks)
c. Define the following with respect to ADC: i) Range; ii) Precision; iii) Resolution. (06 Marks)
- 4 a. What is the need for a sample and hold circuit? Explain its operation for an ADC. (04 Marks)
b. With the help of flowcharts, explain ADC interrupt software. (06 Marks)
c. Explain with block diagram of code, software implementation of successive approximation ADC. (10 Marks)

PART – B

- 5 a. With a suitable example, explain shared data problem. (07 Marks)
b. Explain Round Robin with interrupts architecture with the help of a pseudocode. (06 Marks)
c. List the problems associated with semaphores. Explain priority inversion. (07 Marks)
- 6 a. What is a Reentrant function? Mention the rules to be applied to check a function for reentrancy. (06 Marks)
b. With a suitable example, show how semaphores can be used to make a function reentrant. (08 Marks)
c. What is a task? What are the three states in which a task can exist? Explain. (06 Marks)
- 7 a. What is switch bounce? Discuss how a capacitor can be used to eliminate switch bounce when pressed and released with relevant waveforms. (10 Marks)
b. Explain the different schemes for inter facing keys to an 8 bit parallel port. (06 Marks)
c. With figures, explain: i) Half duplex; ii) Full duplex serial communication. (04 Marks)
- 8 a. With block diagrams, explain the architecture of a computer with memory mapped I/O and isolated I/O. (08 Marks)
b. Explain how a 32K PROM can be interfaced to a 6811 μ C, with neat figures. (12 Marks)

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Important Note - 1 On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any recording of identification of questions, figures and diagrams written on P.O.X. will be treated as malpractice.