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10EE665

Sixth Semester B.E. Degree Examination, Dec.2019/Jan.2020
Embedded Systems

Time: 3 hrs.

Max. Marks:100

Note: *Answer FIVE full questions, selecting*
atleast TWO questions from each part.

PART – A

1 a. Define an embedded systems. Discuss the classification of embedded systems. **(08 Marks)**
   b. Explain the various registers of 6808 microcontroller and condition code register of 6811 microcntorller. **(06 Marks)**
   c. With the help of neat timing diagram, explain the sequence of events that occur when microprocessor reads from a ROM. **(06 Marks)**

2 a. Describe the architectural features of 6811 µc with a suitable block diagram. **(10 Marks)**
   b. Compare the characteristics of different memories used in embedded systems. **(05 Marks)**
   c. Write short note on sample and hold circuit. **(05 Marks)**

3 a. With neat block diagram and necessary waveforms explain 8 bit Ramp ADC. **(06 Marks)**
   b. Explain the operation of a 3bit unsigned DAC R-2R ladder network, with neat circuit diagram. **(06 Marks)**
   c. With neat block diagram, explain data acquisition system for temperature measurement. **(08 Marks)**

4 a. What is market window? Explain its importance. **(04 Marks)**
   b. What is design metric? Explain any six design metric briefly. **(08 Marks)**
   c. List and define the three main IC technologies. What are the benefits of each? **(08 Marks)**

PART – B

5 a. Explain the following data structures used in C.
      i) Queue   ii) Stack iii) Array iv) Tree. **(08 Marks)**
   b. Explain round robin with interrupt architecture with the help of its pseudocode. Also discuss the worst case response time of this architecture. **(08 Marks)**
   c. Explain the difference between RTOS and desktop machine operating systems. **(04 Marks)**

6 a. What is task? Explain the states in which a task can exist. With neat diagram. **(06 Marks)**
   b. What are the different ways to protect shared data? Explain. **(08 Marks)**
   c. What is re-entrant function? List the rules to check if a function is re-entrant or not. **(06 Marks)**

7 a. Explain the three ways of interfacing multiple keys to an 8 bit parallel port. **(08 Marks)**
   b. With figures, explain : i) Half duplex ii) Full duplex serial communication. **(04 Marks)**
   c. With neat block diagram, explain the architecture of a computer with memory mapped I/O and isolated I/O. **(08 Marks)**

8 a. List the advantages of LCD over a LED. **(04 Marks)**
   b. With a neat block diagram, explain the interfacing of 8k RAM, with 6811 processor. **(08 Marks)**
   c. Explain with neat block diagram about interface of a PID velocity controller. **(08 Marks)**

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