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10EE665

Sixth Semester B.E. Degree Examination, Aug./Sept. 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. How embedded systems are classified? Explain each classification with examples. **(08 Marks)**

b. With neat block diagram, explain expanded mode of operation of 68HC11 micro controller. **(08 Marks)**

c. With neat sketch, explain the internal view of an 8 × 4 ROM. **(04 Marks)**

2 a. Explain various registers available in 6808 micro controller. **(06 Marks)**

b. Write the difference between static-RAM (SRAM) and dynamic –RAM (DRAM). **(06 Marks)**

c. With neat diagram and timing waveform, explain 16-bit dual slope –ADC. **(08 Marks)**

3 a. With neat diagrams, explain the operation of a 3bit DAC, with R – 2R ladder network. **(06 Marks)**

b. What is BIFET analog multiplexer? Explain with a neat diagram, the use of an analog multiplexer to make a variable gain amplifier. **(06 Marks)**

c. With neat block diagram, explain data acquisition system for temperature measurement. **(08 Marks)**

4 a. Discuss 3 – approaches to interfacing 12-bit DAC to the micro computer. **(06 Marks)**

b. What is design metric? List and explain various design metrics of an embedded system. **(08 Marks)**

c. Revenue model as shown below in Fig.Q4(c). Derive % revenue loss equation for any rise angle rather than just for 45°.

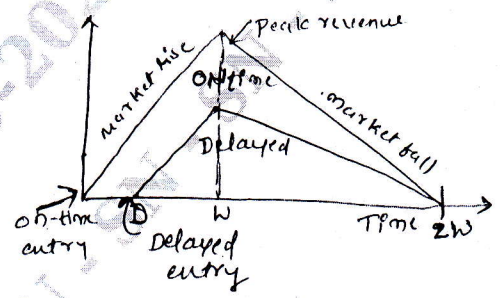

Fig.Q4(c) **(06 Marks)**

PART – B

5 a. Explain round robin architecture with interrupt with the help of pseudo code and mention the advantages and disadvantages. **(08 Marks)**

b. What is reentrant function? List the three rules to check if a function is reentrant or not. **(06 Marks)**

c. What are the C-programming elements? **(06 Marks)**

6 a. What is task? Explain the different states of task, with neat block diagram. (06 Marks)
b. Explain the different types of semaphores. (06 Marks)
c. Explain the shared data problem and methods of protecting the shared data in real time system. (08 Marks)

7 a. List the advantages of LCD over LED. (04 Marks)
b. Explain the latched interface of LCD, with a neat block diagram. (06 Marks)
c. Explain architecture of a computer with memory mapped input output and isolated input output. (10 Marks)

8 a. Define :
i) Data frame
ii) Simplex communication
iii) Half duplex communication
iv) Full duplex communication, with respect to serial input output, with examples. (10 Marks)
b. Explain general approach to interfacing memory to the 6811 micro controller with neat block diagram. (10 Marks)

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