B.E.(with Credits)-Regular-Semester 2012-Instrumentation Engineering Sem VII
IN - Embedded System

P. Pages : 2

Time : Three Hours

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* 4 6 8 5 *

Max. Marks : 80

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Notes : 1. Same answer book must be used for all questions.
2. All questions carry marks as indicated.
3. Due credit will be given to neatness and adequate dimensions.
4. Assume suitable data wherever necessary.

1. a) What are the design challenges in embedded system designing. **8**

b) Explain the recent trend in embedded system. **8**

OR

2. a) What are the basic hardware & software units required for an embedded system. **8**

b) Explain the concept of embedded system design. **8**

3. a) Discuss the memory space allocation in AVR microcontroller. **8**

b) Draw the block diagram of AVR microcontroller. **4**

c) Describe the concept of RISC. **4**

OR

4. a) Explain the architecture of AVR microcontroller. **8**

b) Compare the various member of AVR family. **8**

5. a) Explain the various timers used in AVR microcontroller. **8**

b) Explain with example the use of watch dog timer. **8**

OR

6. a) Describe the sequence of events that occurs upon AVR power up. **8**

b) Write a short note on **any two.** **8**

i) Interrupts.

ii) I/O ports.

iii) Power down modes.

7. a) Write a simple operation ADD, load & access internal RAM memory in AVR. **8**

b) Write a program to toggle all the bits of I/O register port B every 1s. Assume that crystal frequency is 8 MHz. **8**

<div align="center">**OR**</div>

8. a) Write a program to get data from channel O of ADC & display it in port A and port B. **8**

b) Describe AVR data types and directives. **8**

9. a) Explain the concept of process management in RTOS. **8**

b) Explain the concept of shared data. **8**

<div align="center">**OR**</div>

10. a) Write short note on : **8**

i) Simaphores.

ii) Memory management in RTOS.

b) What are the functions and events used in RTOS. **8**

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