[4859]-114

B.E. (Electronics)

EMBEDDED SYSTEMS

(Semester - I) (404203) (2008 Course)

Time : 3 Hours]   *[Max. Marks : 100*

Instructions to the candidates:

1)   Answer 3 questions from each section.

2)   Answers to the two sections should be written in separate books.

3)   Figures to the right indicate full marks.

4)   Assume suitable data, if necessary.

SECTION - I

Q1) a)   What are various software architectures used in embedded system design?   **[12]**

b)   Describe the pico-net & scatter-net concept used in blue tooth protocol.   **[6]**

OR

Q2) a)   What are various design metrics used in embedded system design? **[12]**

b)   Describe the topologies supported in Zigbee protocol.   **[6]**

Q3) a)   What are the processor and memory selection criteria used in embedded system design?   **[10]**

b)   What are the various reasons for occurrence of interrupt latency?   **[6]**

OR

Q4) a)   What are four major design rules used for RISC Processor?   **[10]**

b)   Describe how interrupt latency can be minimized?   **[6]**

Q5) a)   With the help of data flow model of ARM processor, describe the load and store operation performed by the processor?   **[10]**

b)   Compare ARM mode with Thumb mode.   **[6]**

OR

P.T.O.

Q6) a) Describe Register banking concept used in ARM processor? **[10]**

b) Describe the role of SPSR & CPSR in ARM processor. **[6]**

SECTION - II

Q7) a) LPC 2148 is most suitable processor for protocol converter applications. Explain why? **[6]**

b) Draw the interfacing diagram to interface 8 × 8 keyboard matrix to LPC 2148 Processor. Also write C code for this interface? **[10]**

OR

Q8) a) Describe on chip ADC interface of LPC 2148. Also write C code for ADC operation? **[8]**

b) Describe on chip PWM interface of LPC 2148. Also write C code for PWM operation? **[8]**

Q9) a) Traditional OS is not suitable for embedded system design. Explain why? **[8]**

b) Describe state diagram of "µCOS-II". **[8]**

OR

Q10) a) What features of "µCOS-II" makes it suitable for embedded system applications? **[6]**

b) Describe various scheduling algorithms used in embedded system design. **[10]**

Q11) a) What are the techniques used in RTOS to handle inter task communication? **[12]**

b) What are the techniques used in RTOS for the generation of the delay? **[6]**

OR

Q12) a) What are the reasons for priority inversion? How this problem can be solved? **[8]**

b) Describe Cruise control system as an application of embedded system? **[10]**

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