

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 0387

Roll No.

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### B.Tech.

(SEM VIII) EVEN SEMESTER THEORY EXAMINATION,  
2009-2010

### EMBEDDED SYSTEMS

Time : 3 Hours

Total Marks : 100

Note : (i) Attempt ALL questions.

(ii) All questions carry equal marks.

1. Attempt *any two* parts of the following : (2x10=20)
  - (a) What is embedded operating system? Also describe the design parameters of an embedded system and its significance.
  - (b) Explain the following :
    - (i) Tristate output
    - (ii) PLD
    - (iii) FSM
  - (c) Describe the operation of general purpose processor. Also describe the DSP chips.
2. Attempt *any two* parts of the following : (2x10=20)
  - (a) Explain the working of CISC and RISC processor. Also describe the Harvard and Von Neumann Architecture.
  - (b) Draw the 8051 microcontroller architecture and also explain the working of each block.
  - (c) What is addressing mode in microcontroller? Also write the all addressing modes with suitable example of instructions.

3. Attempt *any two* parts of the following : (2x10=20)
- (a) Classify the instruction set of 8051 microcontroller. Also write a program to add ten numbers from some specified location.
  - (b) Explain the following :
    - (i) Memory organisation.
    - (ii) Serial communication
  - (c) (i) What are different types of interrupt in 8051 microcontroller?  
(ii) What is watchdog Timer?
4. Attempt *any two* of the following : (2x10=20)
- (a) What are the tasks of RTOS? Also explain the semaphores and shared data.
  - (b) Explain the working of message queues and mail boxes.
  - (c) Describe the generation and advancement of processors. Also describe the main architectural features of 80386.
5. Attempt *any two* parts of the following : (2x10=20)
- (a) Write the short notes on following :
    - (i) I/O addressing
    - (ii) Direct memory Access
    - (iii) Wireless protocols
  - (b) Explain the interfacing of stepper motor with 8051 microcontroller.
  - (c) Briefly explain the interfacing of the following:
    - (i) DAC
    - (ii) Keyboard