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

PAPER ID : 0387   Roll No. ☐☐☐☐☐☐☐☐☐☐

B. Tech.

(SEM. VIII) EXAMINATION, 2007-08
EMBEDDED SYSTEMS

Time : 3 Hours]   *[Total Marks : 100*

Notes :   (1)   Attempt **all** questions.

(2)   All questions carry **equal** marks.

(3)   Be precise in your answer.

(4)   No second answer book will be provided.

1   Attempt any **four** parts of the following :

(a)   Write the benefits of choosing a single purpose processor over a general-purpose processor.

(b)   Explain embedded system

(c)   Classify the embedded system into the small scale, medium scale and sophisticated systems.

(d)   Write different applications of embedded system.

(e)   Explain in brief the software design tools for embedded system.

(f)   Explain the following:

(i)   Design life cycle

(ii)   Design parameters of an embedded system

2   Attempt any **four** parts of the following:

(a)   Explain Watchdog timer

(b)   Explain hardware digital circuit parameters for embedded systems.

(c)   Explain how DSP chips used as embedded system.

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(d) What are CISC and RISC processors?

(e) Explain the various architectural features of 8051 Micro-controllers.

(f) What are Harvard and Von-Neumann architectures? Write their merits/demerits.

3 Attempt any **two** parts of the following :

(a) Explain the addressing modes of 8051 with suitable examples.

(b) Explain in brief:
   (i) 8051 serial communication programming
   (ii) 8051 Interrupt programming

(c) Write 8051 program for the following:
   (i) Addition of two BCD numbers
   (ii) Multiplications of two Hex numbers.

4 Attempt any **two** parts of the following :

(a) Differentiate RTOS and typical operating system. Describe any three requirements of real time system.

(b) Explain (RTOS)
   (i) Preemptive scheduling
   (ii) Message queues and mail boxes.

(c) Draw the architecture of 80486 Microprocessor and explain the function of each block.

5 Attempts any **two** parts of the following :

(a) How will you interface an ADC and DAC with 8051? Explain with suitable example.

(b) Explain the following :
   (i) DMA
   (ii) Keyboard and display interface.

(c) Write short notes on the following:
   (i) Writeless Protocol
   (ii) Multilevel bus architecture