Roll No. ....

EC–504(N)

B. E. (Fifth Semester) EXAMINATION, June, 2011

(Electronics and Communication Engg. Branch)

MICROPROCESSORS, MICROCONTROLLERS AND EMBEDDED SYSTEMS

[EC–504(N)]

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note : Total questions to be attempt are *five*. One question from each Unit to be answered. All questions carry equal marks.

Unit—I

1. (i) With the help of neat diagram, describe the internal architecture of 8086 microprocessor. 10

   (ii) Why are buffers and latches often required in an 8086 based system ? Explain how address, data and control buses of 8086 microprocessor are demultiplexed. 10

Or

2. (i) What main function is provided by the 8288 bus controller, when used with 8086 microprocessor ? Draw pin diagram of 8288 bus controller. 10

   (ii) What are the minimum requirements for 8086 microprocessor to work in minimum mode ? 10

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Unit – II

3. (i) For the following instructions, compute the address of memory operand for 8086 :   10

    (a)   MOV AX, [BX]

    (b)   MOV AL, [BP + SI]

    Assume CS : 0100H,   DS : 0200H,   SS : 0400H, ES : 0030H, BP : 0010H, BX : 0020H, SI : 0030H, SP: 0040H

  (ii) Write an ALP to find the number of negative elements in a given series of data.   10

Or

4. (i) Explain how 8087 Numeric Data Processor (NDP) communicates with 8086 microprocessor.   10

  (ii) Explain how 8086 microprocessor acknowledges any interrupt. What is the sequence of operations it performs to process an interrupt ?   10

Unit – III

5. (i) Draw and explain the functional block diagram of 8755 EPROM with I/O ports. Explain how data can be erased from 8755 EPROM ?   10

  (ii) Enlist the different modes of operation of 8253 programmable interval timer and explain Mode-2 of operation.   10

Or

6. (i) Draw the functional block diagram of 8255 A programmable peripheral interface.   10

  (ii) Explain the different operating modes of 8257 DMA controller.   10

Unit—IV

7. (i) Draw and explain the register organization of 8051 microcontroller. 10

(ii) Explain how any port of 8051 microcontroller can be used as ? 10

(a) Simple input port.

(b) Simple output port.

(c) Multiplexed address/data bus for external memory.

Or

8. (i) Enlist and explain addressing modes of 8051 microcontroller. 10

(ii) With the help of a neat diagram, explain how LCD can be interfaced to 8051 microcontroller ? 10

Unit—V

9. (i) Enlist the different applications of an embedded system. 10

(ii) Explain different types of memories in an embedded system. 10

Or

10. (i) Explain the various components of an embedded system for a smart card. 10

(ii) Explain the use of LCD/LED displays and keyboard/keypad in an embedded system. 10

EC–504(N)

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