

Total No. of Questions : 10] [Total No. of Printed Pages : 3

Roll No.

EC-504

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

(Electronics & Communication Engg. Branch)

**MICROPROCESSORS, MICROCONTROLLER AND
EMBEDDED SYSTEMS**

(EC-504)

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note : Attempt any *one* question from each Unit. All questions carry equal marks.

Unit-I

1. (a) Discuss the internal architecture of 8086. Draw also its internal block diagram.
- (b) What is queue ? What for is it used in 8086 ? How queue is implemented in 8086 ? Explain in detail.

Or

2. (a) Give the register structure of 8086. Also discuss why segmentation is done.
- (b) What are interrupts ? Explain interrupts of 8086. What do you understand by maskable and non-maskable interrupts ? Discuss the vector table of 8086.

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Unit – II

3. (a) Explain the addressing modes of 8086 with examples.
- (b) Write a program in 8086 assembly language to find average of two numbers.

Or

4. (a) What are procedures and macros ? Explain. Distinguish between procedures and macros.
- (b) Discuss different instruction groups of 8086 with suitable examples.

Unit – III

5. (a) What are BSR mode and I/O mode of operations of 8255 ? Explain in detail. Also give its various applications.
- (b) Explain USART (8251 A). What is its application ? Discuss command word format of 8251.

Or

6. (a) Discuss the working of DMA controller. Also describe its various modes of operation.
- (b) Describe programmable interrupt controller. What are functional features of it ? How its interrupt properties are managed ?

Unit – IV

7. (a) Draw the block diagram of internal architecture of 8051. Also explain its various features.
- (b) Describe memory organization and external addressing of 8051.

Or

8. (a) Discuss I/O ports, internal RAM and registers and interrupts of 8051.
- (b) Discuss any *one* real time application of microcontrollers in detail.

Unit – V

9. (a) What do you understand by embedded systems ? Give its classifications. Discuss the hardware units and software embedded into system.
- (b) Give case study of an embedded system for a smart card.

Or

10. Discuss applications and products of embedded systems. Also describe structural units in processor and interfacing of processor memory and I/O devices.