



Name :

Roll No. :

Invigilator's Signature :

CS / M.TECH(CSE-OLD) / SEM-2 / CS-1008 / 2012

2012

**MICROPROCESSOR MICROCONTROLLER &
APPLICATIONS**

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer any five questions

1. a) What is Minimum and Maximum mode operation of 8086/8088 μ P ? 4
- b) What is Base-plus-Index Addressing and Register Relative Addressing mode ? Discuss with suitable example. 3
- c) How does 8284 A clock generator operate as a clock ? 3
- d) Discuss about virtual 8086 mode. 4
2. a) Name four major differences between a microprocessor and microcontroller. 4
- b) Describe the 16-bit Data Addressing registers and their functions of 8051 microcontroller. 3
- c) Explain the number of register banks and their addresses of 8051 microcontroller. 3



- d) Write the instruction(s) for 8051 microcontroller for the following operations :

- i) Exchange the contents of SP and PSW.
- ii) Copy the data at internal RAM location FIH to R0 and R3. 4

3. a) Describe the effect on the microprocessor and DMA controller when the HOLD and HLDA pins are at their logic 1 level ? 3

- b) What is the function of command registers of 8237 DMA controller ? 3

- c) Which 8237 DMA controller register is programmed to initialize the controller ? 2

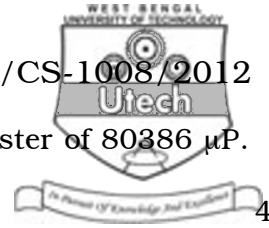
- d) What is the function of mode register ? What do you mean by bus master and bus arbiter ? 3 + 3

4. a) Describe how the 80386 switches are used from real mode to portected mode. 4

- b) Describe the 80386 memory system and operation of the bank selection signal. 4

- c) What is a descriptor and how does the selector choose the local descriptor table. 3

- d) What is the difference between a segment descriptor and a system descriptor ? 3



5. a) Describe the structure of control register of 80386 μ P. 4
- b) Define the purpose of each 80386 debug register. The debug register caused which level of interrupt ? 3 + 1
- c) What two additional segment registers are found in the 80386 programming model that are not present in the 8086 and define their functions ? 3
- d) Describe each 80386 flag register bit and describe its purpose. 3
6. a) Discuss about the functions of the timers in 80186 μ P. 4
- b) How many Interrupt vectors are available to the interrupt controller located within the 80186 μ P ? 2
- c) Which two modes of operation are available to the interrupt controller ? 3
- d) What is the purpose of the interrupt control register ? 3
- e) What is the function of interrupt poll ? 2
7. a) Write an assemble language program to calculate the sum of a series of 16-bit numbers and the sum will be 32 bit long. 5



b) Write an assemble language program to arrange numbers in ascending order. 4

c) Write an assemble language program to add AX, BX, CX and DX. If a carry occurs, place logc 1 in DI. If no carry occurs, place a 0 in DI. The sum should be found in AX after the execution of your procedure. 5

8. Write short notes on any *two* of the following : 7 + 7

a) Real Time Operating System (RTOS)

b) Interleaved Memory System

c) Memory paging mechanism.

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