

Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/B.Tech (CSE/IT/PWE/EEE)/SEM-5/EI-502/2010-11**

**2010-11**

**MICROPROCESSOR AND MICROCONTROLLER**

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.*

**GROUP – A**

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives for any *ten* of the following :

10 × 1 = 10

- i) What is the vector location of NMI ?
  - a) 00000H
  - b) 00008H
  - c) 00010H
  - d) 00014H.
- ii) The interrupt pin available in the 8085A microprocessor chip is
  - a) ALE
  - b) HLDA
  - c) INTER
  - d) SOD.
- iii) For 8257 controller ..... is the highest priority channel by default.
  - a) CH-3
  - b) CH-0
  - c) CH-1
  - d) any channel.
- iv) The clock frequency is 60 Hz. The clock interrupt handler on a computer needs 2 msec per clock tick. What percentage of the CPU is devoted to the clock ?
  - a) 1.2
  - b) 7.5
  - c) 12
  - d) 18.5.





**GROUP – B**

**( Short Answer Type Questions )**

Answer any *three* of the following.

3 × 5 = 15

2. Write down the steps of execution of an instruction sequentially by 8085 microprocessor.
3. Write an A.L.P. in 8085 to find the total number of zeros and ones in a given string. Store the results in the memory location 9055 H onwards.
4.
  - i) Explain why no. of output ports in I/O mapped I/O technique is restricted to 256 ports.
  - ii) Specify the 8085 signals that are used to enable an input and output port.
  - iii) If an output port can have the same 8 bit address, how does the 8085 differentiate between ports ?
5. Draw the timing diagram of MOV A, M.
6. State the difference between architectures of 8086 and 8088  $\mu$ P.

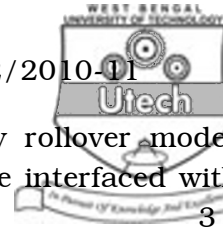
**GROUP – C**

**( Long Answer Type Questions )**

Answer any *three* of the following.

3 × 15 = 45

7.
  - a) What do you mean by DMA operation ? Write down the steps of DMA operation. What is fixed priority mode and what is rotating priority mode ?
  - b) If the clock frequency is 5 MHz, how much time is required to execute the instruction MVI B, 08 ( 7T state ) ? Draw the timing diagram.



8. a) What is two key lockout and  $N$ -key rollover mode of 8279 ? How an A/D converter can be interfaced with a 8085 microprocessor ? 3 + 5
- b) Write an assembly language program for BCD to binary conversion. 4
- c) What are the functions of RESET, HOLD, INTERRUPT and READY pins ? 3
9. a) Describe the different addressing modes of 8086 microprocessor. 5
- b) Draw the architecture of 8086. What are the functions performed by BIU and EU of 8086 microprocessor. 7
- c) How is pipelining achieved in 8086 microprocessor ? 3
10. a) What do you mean by interrupt driven system ? Arrange the interrupt according to their priority. Define maskable and non-maskable interrupts. What is interrupt call location ? 2 + 2 + 2 + 1
- b) Why is decoder circuit needed ? Using 74LS 138 draw and explain the interfacing of memory and IO devices. 1 + 7
11. Write short notes on any *three* of the following : 3 × 5
  - a) Addressing modes of 8051 microcontroller
  - b) 8259 Interrupt controller
  - c) BSR mode of 8255
  - d) MIN/MAX mode operation of 8086 microprocessor
  - e) Hardware interrupt of 8085 CPU.

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