



Name :
Roll No. :
Invigilator's Signature :

CS/B.TECH(ECE-NEW)/SEM-5/EC-502/2012-13

2012

MICROPROCESSOR & 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)

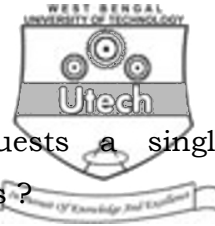
1. Choose the correct alternatives for any *ten* of the following :

10 × 1 = 10

- i) The instruction MOV A, B belongs to
 - a) immediate addressing
 - b) directing addressing
 - c) implied addressing
 - d) register addressing.
- ii) In 8085, TRAP is
 - a) always maskable
 - b) can't interrupt a service sub-routine
 - c) use for temporary power failure
 - d) lowest priority interrupt.

5106(N)

[Turn over



iii) How many hardware interrupt requests a single interrupt controller IC8259A can process ?

- a) 8
- b) 15
- c) 16
- d) 64.

iv) In DMA operation data transfer takes place between

- a) Memory & CPU
- b) CPU & I/O
- c) I/O & Memory
- d) Different CPUs.

v) The programmable interval timer is

- a) 8253
- b) 8251
- c) 8250
- d) 8275.

vi) How many flag registers are in 8051 ?

- a) 9
- b) 8
- c) 6
- d) 5.

vii) 8259 is

- a) programmable DMA controller
- b) programmable interval timer
- c) programmable interrupt controller
- d) none of these.



viii) The interrupt masks in 8085 can set or reset by the instruction

- a) EI
- b) DI
- c) RIM
- d) SIM.

ix) The vector address corresponding to software interrupt command RST7 in 8085 microprocessor is

- a) 0017 H
- b) 0027 H
- c) 0038 H
- d) 0700 H.

x) A microprocessor is said to be a 8 bit, 16 bit etc. depending on its

- a) data bus
- b) address bus
- c) ALU
- d) control bus.

xi) When subroutine is called the address of the instruction next to 'CALL' is save in

- a) stack pointer register
- b) program counter
- c) stack
- d) PSW.

xii) The number of register pairs of 8085 microprocessor are

- a) 3
- b) 4
- c) 2
- d) 5.



GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following $3 \times 5 = 15$

2. Draw the timing diagram of OUT instruction.
3. What do you mean by conditional & unconditional jump ?
Give example.
4. What is the function of DAD instruction in 8085 processor ?
Write the output if input is F0 :

LXI H, 2050

MOV A, M

CMA

ADI 01

STA 2060

5. What is the difference between SIM & RIM instruction.
6. Explain the memory segmentation scheme with reference to 8086 microprocessor.

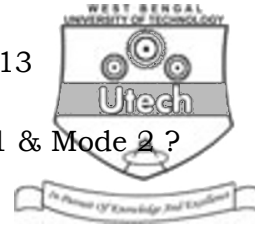


GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. a) What are the different addressing modes of 8085 microprocessor ? Explain with at least two examples for each.
- b) Explain the function of RIM instructions.
- c) Write a program to enable RST 6·5 and disable RST 7·5, RST 5·5. $6 + 4 + 5$
8. a) With respect to 8237 explain the DMA operation.
- b) What are the priorities of DMA request ? Enumerate them.
- c) What are the major components of 8259A interrupt controller ? Explain their functions. $5 + 4 + 6$
9. a) Draw and explain the timing diagram of the instruction IN 00H.
- b) Write an ALP to find out the largest number from a given array of 10 numbers.
- c) Differentiate between peripheral mapped I/O and memory mapped I/O. $7 + 5 + 3$



10. a) What do you mean by Mode 0, Mode 1 & Mode 2 ?
- b) Write down the control word for the following in Mode 0 :
- Port A = Input, Port B = Not used, Port C_U = Input,
Port C_L = Output.
- c) Write a BSR control word subroutine to set bits PC_7 and PC_3 and reset them after 10 ms. Assume that a delay subroutine is available and Hex address of Port A = 80 H.
- d) Explain how bidirectional communication can be done between two computer using 8255 A. 3 + 4 + 4 + 4
11. a) What do you mean by pipelined architecture ? How is it implemented in 8086 ?
- b) Explain how 20-bit physical address is generated in 8086 microprocessor.
- c) Explain the operations of BIU and EU present in 8086 microprocessor. (2 + 3) + 4 + 6



12. Write short notes on any *three* of the following : 3 × 5

- a) Addressing modes of 8051 microcontroller
- b) MAX mode and MIN mode
- c) Memory organization of 8051 microcontroller
- d) PIC microcontroller
- e) Stack Memory.

=====