



Name :
Roll No. :
Invigilator's Signature :

CS / B.TECH (BME/EE (O)) / SEM-6 / EI-611 / 2011

2011

MICROPROCESSOR & 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.*

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : $10 \times 1 = 10$
 - i) Which instruction uses Auxiliary Carry Flag internally ?
 - a) XTHL
 - b) CMA
 - c) DAA
 - d) SPHL.
 - ii) Which of the following is the Non-Maskable Interrupt of 8085 Microprocessors ?
 - a) RST 7.5
 - b) INTR
 - c) TRAP
 - d) EI.
 - iii) When the instruction 'POP H' is executed, the Stack Pointer is
 - a) decremented by 1
 - b) decremented by 2
 - c) incremented by 1
 - d) incremented by 2.



- iv) The Flags affected by the instruction 'DCX B' are
 - a) Carry, Zero
 - b) all except Carry
 - c) both (a) and (b)
 - d) none of these.
- v) When the instruction 'LDAX' is executed, number of T-states required
 - a) 10
 - b) 14
 - c) 15
 - d) 7.
- vi) How many output devices can be identified by the MPU using Memory Mapped I/O ?
 - a) 256
 - b) 255
 - c) 65536
 - d) 128.
- vii) The Port of 8255 which can be used in BSR Mode is
 - a) Port A only
 - b) Port B only
 - c) Port C only
 - d) none of these.
- viii) Machine Cycles required in 'CALL' instruction are
 - a) 6
 - b) 5
 - c) 4
 - d) 3.
- ix) PSW is a
 - a) 16-bit Register
 - b) 32-bit Register
 - c) 8-bit Register
 - d) none of these.
- x) Mode 2 of 8254 is
 - a) Rate Generator
 - b) Square Wave Generator
 - c) Software Triggered Strobe
 - d) Interrupt on Terminal Count.



GROUP – B

(Short Answer Type Questions)

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

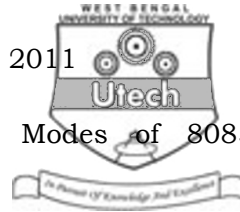
2. What is Microprocessor ? Draw and explain the Flag register format of 8085 Microprocessor. $2 + 3$
3. Write the functions of the following instructions :
 - (i) LADX
 - (ii) LXI
 - (iii) DAA
 - (iv) PCHL
 - (v) RLC.
4. What do you mean by Conditional & Unconditional Jumps ? Give example.
5. Explain with example the difference between Memory Mapped I/O and I/O Mapped I/O.
6. What is the advantage of Multiplexed Address & Data Bus ? Show how it can be demultiplexed in 8085. $1 + 4$

GROUP – C

(Long Answer Type Questions)

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

7. a) Write an Assembly language programme to add first 10 natural numbers and store the result at memory location 2050 H.
- b) The instruction code 01001111 (4FH) is stored in memory location 2005H. Explain the data flow and list the sequence of events when the instruction code is fetched by the MPU.
- c) Discuss the operations performed by the PUSH and POP instructions. $6 + 5 + 4$



8. a) Describe the different Addressing Modes of 8085 Microprocessor.
b) Write an Assembly Language Program to find Two's complement of a 16-bit Number.
c) Explain the function of the following pins of 8085 :
READY, INTR. 5 + 5 + 5
9. a) What is Microcontroller ? Explain with a block diagram.
b) What is the difference between Microprocessor & Microcontroller ?
c) What is the function of Program Status Word (PSW) in 8051 ?
d) Name the different Addressing Modes of 8051 Microcontroller. 4 + 4 + 4 + 3
10. a) Draw the block diagram of 8254 timer and briefly discuss its different sections.
b) What do you mean by Mode 0, Mode 1, Mode 2 operations of 8255 PPI ?
c) Discuss the control word format in the BSR Mode of 8255 PPI.
d) In Mode 1 operation of 8255 PPI, what are the control signals when ports A & B act as output ports ? Discuss the control signals. 5 + 3 + 2 + 5
11. Write short notes on any *three* of the following : 3 × 5
a) Internal organization of 8086
b) RIM & SIM
c) DMA operation
d) Programmable peripheral interface
e) Compiler.

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