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 × 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 × 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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