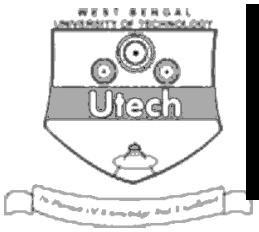
MICROPROCESSOR & APPLICATIONS (SEMESTER - 6)

CS/B.TECH (BME/EE (O))/SEM-6/EI-611/09



1. .....
Signature of Invigilator

2. .....
Signature of the Officer-in-Charge

Reg. No.

Roll No. of the Candidate

CS/B.TECH (BME/EE (O))/SEM-6/EI-611/09

ENGINEERING & MANAGEMENT EXAMINATIONS, JUNE – 2009

MICROPROCESSOR & APPLICATIONS (SEMESTER - 6)

Time : 3 Hours] [Full Marks : 70

INSTRUCTIONS TO THE CANDIDATES :

1. This Booklet is a Question-cum-Answer Booklet. The Booklet consists of **32 pages**. The questions of this concerned subject commence from Page No. 3.
2. a) In **Group – A**, Questions are of Multiple Choice type. You have to write the correct choice in the box provided **against each question.**
   b) For **Groups – B** & **C** you have to answer the questions in the space provided marked 'Answer Sheet'. Questions of **Group – B** are Short answer type. Questions of **Group – C** are Long answer type. Write on both sides of the paper.
3. **Fill in your Roll No. in the box** provided as in your Admit Card before answering the questions.
4. Read the instructions given inside carefully before answering.
5. You should not forget to write the corresponding question numbers while answering.
6. Do not write your name or put any special mark in the booklet that may disclose your identity, which will render you liable to disqualification. Any candidate found copying will be subject to Disciplinary Action under the relevant rules.
7. **Use of Mobile Phone and Programmable Calculator is totally prohibited in the examination hall.**
8. You should return the booklet to the invigilator at the end of the examination and should not take any page of this booklet with you outside the examination hall, **which will lead to disqualification**.
9. Rough work, if necessary is to be done in this booklet only and cross it through.

No additional sheets are to be used and no loose paper will be provided

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FOR OFFICE USE / EVALUATION ONLY

Marks Obtained

	Group – A										Group – B			Group – C			***Total Marks***	***Examiner's Signature***
Question Number																		
Marks Obtained																		

.....
Head-Examiner/Co-Ordinator/Scrutineer

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ENGINEERING & MANAGEMENT EXAMINATIONS, JUNE – 2009

MICROPROCESSOR & APPLICATIONS

SEMESTER – 6

Time : 3 Hours] [Full Marks : 70

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : $10 \times 1 = 10$

i) Machine cycles required for the execution of the instructions LHLD 2050H are

a) 4 b) 3

c) 2 d) 1.

ii) The status of status signals of 8085 microprocessor for Opcode Fetch operations (IP/M, S_1, S_0) is

a) 0, 1, 0 b) 1, 1, 1

c) 0, 1, 1 d) 0, 1, 0.

iii) The triggering level of TRAP is

a) level & edge sensitive b) level sensitive

c) edge sensitive d) none of these.

iv) The control word to set PC_6 of 8255 A using BSR mode is

a) 0EH b) 0DH

c) 1DH d) 10H.

v) How many modes are available in 8254 ?

a) 4 b) 5

c) 6 d) 3.

vi) What is the size of data bus in 8086 ?

a) 8 bit b) 15 bit

c) 16 bit d) 4 bit.

vii) When parity flag of 8085 will be set ?

a) Even parity b) Odd parity

c) Undefined d) None of these.

viii) The frequency of CLK-OUT signal of 8085 CPU for crystal frequency 6 MHz is

a) 6 MHz b) 3 MHz

c) 2 MHz d) 12 MHz.

ix) The instruction XCHG of 8085 CPU exchanges the contents of

a) BC pair and HL pair b) DE pair and HL pair

c) BC pair and DE pair d) HL pair and SP register.

x) In what page of memory RST instructions transfer the program control ?

a) 00 b) 01

c) 02 d) 03.

xi) The Regment and offset address of the instructions to be executed by 8086 μP are pointed by

a) CS and SI b) DS and IP

c) CS and SP d) CS and IP.

xii) The invalid instruction in case of 8086 μP is

a) MOV AX, 2000H b) MOV BX, 2000H

c) MOV DS, 2000H d) MOV SI, 2000 H.

xiii) The instruction queue length of 8086 μP is

a) 8 byte b) 6 byte

c) 4 byte d) 2 byte.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following questions. 3 × 5 = 15

2. Specify the contents of a accumulator, Reg. *B*, *C*, *D*, *E*, *H*, *L* and Flag when the following instructions are executed :

MVI *A*, 09*H*
MOV *B*, *A*
MOV *C*, *B*
DCX *B*
MOV *L*, *B*
MOV *H*, *C*
PUSH *H*
POP *D*. 5

3. a) Explain the functions of the ALE and READY signal.

   b) What are the different addressing modes available in 8085 microprocessor ? 2 + 3

4. a) Explain the functions of the following instructions : 3 × 1

      i) LDA $(6850)_H$

      ii) ADCB

      iii) STA $(9000)_H$.

   b) Explain the tusk of the signals given below : 2 × 1

      i) HOLD

      ii) HLDA

5. Differentiate between the following :

   a) I/O mapped I/O and memory mapped I/O.

   b) μ-processor & μ-controller. 3 + 2

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following questions. 3 × 15 = 45

6. a) List the operating modes of the 8255 Programmable peripheral Interface.

   b) Write the control word format of 8255 for I/O mode.

   c) Design an interfacing circuit (with assembly language program) to read data from an A/D converter using 8255 chip in mode-0 and BSR mode.

      i) set-up port-A to read data

      ii) set-up PC_0 to start conversion and PC_7 to read end of conversion (active low signal) of the converter. 3 + 2 + (5 + 5)

7. a) What are the main functions of BIU and EU ? How does this separation in units speed up the processing ?

   b) What is instruction queue in BIU ? What is its function in enhancement of operation speed ? What is pipelining ?

   c) What are minimum and maximum mode of 8086 microprocessor ? 5 + 5 + 5

8. a) What is tri-state device ? What is absolute addressing decoding ? What is its advantage over partial address decoding ?

   b) Design a circuit to interface one 2732 EPROM (4K × 8) chip with 8085 microprocessor using 74LS138 (a 3-to-8-decoder with $\overline{E}_1, \overline{E}_2, \overline{E}_3$ encoding lines).

   c) What is the purpose of HOLD and READY signal ? (2 + 3) + 7 + 3

9. a) Discuss the internal structure of 8051 microcontroller.

   b) Explain the PSW bits, TMOD bits & TCON bits of 8051 microcontroller. 8 + 7

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

    a) Addressing modes in 8085

    b) Internal organization of 8086

    c) RIM & SIM

    d) DMA operation.

END