CS/B.TECH (EE)/SEM-8/EE-801D/09

1. ..... *Signature of Invigilator*

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

Reg. No. | | | | | | | | | | | | | | |

Roll No. of the Candidate | | | | | | | | | | | | | | |

CS/B.TECH (EE)/SEM-8/EE-801D/09

ENGINEERING & MANAGEMENT EXAMINATIONS, APRIL – 2009

ADVANCED MICROPROCESSORS (SEMESTER - 8)

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				
Question Number																	***Total Marks***	***Examiner's Signature***
Marks Obtained																		

.....

Head-Examiner/Co-Ordinator/Scrutineer

8850-D/F (25/04)

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ENGINEERING & MANAGEMENT EXAMINATIONS, APRIL – 2009

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GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : 10 × 1 = 10

i) The stack organized computers use instruction of

a) zero address b) one-address

c) two-address d) three-address. ☐

ii) MOV ARRAY[BX+SI],DX is an example of

a) base-index addressing

b) scaled index addressing

c) base-relative-plus-index addressing

d) register indirect addressing. ☐

iii) How many memory locations can be addressed by a 32-bit computer ?

a) 64 kB b) 32 kB

c) 4 GB d) 4 MB. ☐

iv) The memory hierarchy system in respect to increasing speed consists of

a) secondary, main, cache and internal

b) internal, main, cache and secondary

c) internal, main, secondary and cache

d) cache, main, secondary and internal. ☐

v) Number of segments in 8086 memory is

a) 16 minimum b) 16 maximum

c) 1 d) 16 only. ☐

vi) Directional flag = 0 means that data transfer in 8086 is in

a) auto increment mode

b) auto decrement mode

c) manual mode depending on programming

d) none of these. ☐

vii) To construct a RAM memory of capacity 512 words each of size 12 bits using RAM chips each of size of size 128 × 4, the number of rows and columns are

a) 4, 3 b) 5, 3

c) 4, 2 d) none of these. ☐

viii) in 80 × 86 processors overflow condition occurs when

a) natural numbers are subtracted

b) unsigned numbers are subtracted

c) signed numbers are subtracted

d) never occurs. ☐

ix) Use of short intruction in a program leads to

a) large program b) small program

c) fast execution d) both (a) and (c). ☐

x) Microcontroller is the example of

a) a general purpose processor

b) a special purpose processor

c) a bit slice processor

d) a single purpose processor.

xi) The instruction LOOP in 8086 processor

a) repeats CX times and CX decremented

b) repeats depending on the status of zero flag

c) jumped back to the specified address only once

d) repeats CX times until CX overflows after auto inncorrect.

xii) The technique of placing software in a ROM chip is called

a) write b) operation

c) firmware d) flash.

GROUP – B

(Short Answer Type Questions)

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

2. What is priority interrupt ?

3. Draw simplified internal configuration of 8086 processor.

4. What is page fault ?

5. What do you mean by pipelining ?

6. State how a SRAM works ?

GROUP – C

(Long Answer Type Questions)

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

7. a) Move a byte string, 20-bytes long, from the offset 0200 H in segment 2000 H to the offset 0300 H in segment 3000 H. Write approximate program on 8086.

   b) Add the contents of the memory location 2000 H : 0500 H to the content of 3000 H : 0600 H and store the result in 5000 H : 0700 H.

   c) Write down the instructions for conditional branching and clarify them on whether these are based on signed on unsigned binary operations. 5 + 5 + 5

8. a) Evaluate the arithmetic statement $X = (A * B) / (C - D)$ in zero, one, two, three address machines.

   b) Design a memory of capacity 1024 × 8 using two sets of memories with RAM of size 512 × 8 and ROM of size 512 × 8.

   c) What is flash memory ? 5 + 8 + 2

9. a) Explain the types of addressing modes available in 8086 processor. Give appropriate example of each of the types.

   b) How does 8086 react in response to the following instructions ?

   i) SAR ii) ROL

   iii) RCR iv) REP MOV AX, BX

   v) MUL CX.

   c) Mention the name of various flags available in 8086 along with their position in flag register. 8 + 5 + 2

10. a) What is virtual memory ? Why is it called virtual ? Write the advantage of virtual memory.

    b) Compare between the hardwire approach and microprogramming approach in constructing a control unit.

    c) What are the modes of data transfer ? (2 + 1 + 2) + 4 + 6

11. a) What are the key characteristics of a computer memory ? Write down the necessity of memory hierarchy.

    b) What are components of main memory ? State the methods of memory access.

    c) Compare SRAM and DRAM. (4 + 3) + (2 + 4) + 2

END