

FIFTH SEMESTER EXAMINATION – 2006**COMPUTER ARCHITECTURE AND ORGANIZATION / -1****Full Marks – 70****Time 3 Hours****Answer Question No. 1 which is compulsory and any five from the rest'***The figures in the right-hand margin indicate marks.*

1. Answer the following questions: [2 x 10]
- How logical address is different from physical address.
 - Explain how a ROM is also a RAM.
 - Define the term memory latency.
 - What is difference between EPROM and EEPROM.
 - How a write through cache differs from write back cache?
 - Define control word.
 - Define the term memory access time
 - Differentiate between system software and application software.
 - differentiate between byte-addressable and word addressable computer.
2. (a) What are the different functional unit present in a digital computer. Briefly explain the function of each unit. [5]
- (b) Write a program that can evaluate the expression $A*B+C*D$ in a single-accumulator processor. Assume that processor has load, Store, Multiply, and Add instruction, and that all values fit in the accumulator. [5]
3. (a) How SDRAM is different from DDRSDRAM [5]
- (b) Design a 8M x 32 memory using 512 K x 8 memory chips. [5]
4. (a) A set-associate map consists of a total of 64 blocks divided into 4 blocks each consisting of 128 words. [5]
- How many bits are there in a main memory address?
 - How many bits are there in each of the TAG, SET and WORD fields?
- (b) Explain how parallelism can be achieved in memory interleaving. [5]
5. (a) Illustrate the Booth process multiplication with an example. [5]

- (b) In a single bus organization of data path inside a processor, show the sequence of steps need to fetch a word from memory. [5]
6. (a) Explain with an example how to design the hardwired control unit of a processor. [5]
- (b) Design a microprogrammed control unit for a twos-compliment multiplier. [5]
7. (a) Explain the Wilkes model of microprogrammed control. [5]
- (b) Illustrate with an example the non-restoring division process. [5]
8. (a) Show the register organization of 8085 microprocessor. [5]
- (b) Explain the different addressing modes available in 8085 microprocessor. [5]

