June-2010

Roll No. ..... Total No. of Pages : 2

BT-4/JX 8301

Computer Architecture and Organization

Paper : CSE-202E

Time : Three Hours] [Maximum Marks : 100

Note :– Attempt **FIVE** questions, selecting at least **ONE** question from each Unit.

UNIT–I

1. (a) Explain MIPS and MFLOPS. 5

   (b) Write note on Performance metrics. 5

   (c) Explain the Flynn's classification of computer system Architecture. 10

2. (a) Discuss Computer Instruction cycle and Execution cycle with the help of suitable example. 12

   (b) Discuss the advantage of RISC architecture over CISC architecture. 8

UNIT–II

3. (a) What is the role of memory wait cycles in the designing read and write access by the processor to main memory ? 10

   (b) Explain Instruction cycle and its phases. 10

4. (a) List the number and size of registers required for implementing shift-and-add multiplication in a processor. 10

   (b) Discuss the Accumulator based CPU. Also explain the design of accumulator. 10

UNIT–III

5. A digital computer has a memory unit of 64K × 16 and a cache memory of 1K words. The cache uses direct mapping with a block size of four words.

   (a) How many bits are there in the tag, index, block, and words field of the address format ?

   (b) How many blocks can the cache accommodate ?

   (c) How many bits are there in each word of cache, and how are they divided into functions ? 20

6. (a) What is the advantage of set-associative mapping over direct mapping ? State the difference between a cache line and a cache block. 10

   (b) What are different types of semiconductor memories ? Give their merits and demerits. 10

UNIT–IV

7. (a) Explain Isolated versus memory mapped I/O with their advantages and disadvantages. 10

   (b) Explain Asynchronous Data Transfer. 10

8. Write notes on :

   (a) DMA Controller

   (b) Address sequencing

   (c) Cache memory. 20