2002 SCHEME

USN ☐☐☐☐☐☐☐☐☐☐

CS46

Fourth Semester B.E. Degree Examination, December 2010
Computer Organization

Time: 3 hrs.

Max. Marks:100

Note: *Answer any FIVE full questions.*

1 a. With the help of a block diagram, show how the memory and the processor can be connected. Explain the function of each unit, with the help of an example instruction.
(08 Marks)
   b. Explain how the concepts of pipelining and superscalar operation can improve the performance of computers.
(08 Marks)
   c. Subtract the following, using the 2's complement form:
      i) 34 from 52   ii) 66 from 47.
(04 Marks)

2 a. Explain the basic input/output operations performed by the processor, with the help of a neat diagram.
(08 Marks)
   b. Explain the use of stack frame in the implementation of nesting of subroutines.   (08 Marks)
   c. Compare the RISC verses CISC processors.
(04 Marks)

3 a. Explain the two methods of handling interrupt requests from multiple I/O devices. (08 Marks)
   b. What are the types of I/O devices interfaced through DMA? Describe the bus-arbitration process used for DMA.
(08 Marks)
   c. List the features of a PCI bus.
(04 Marks)

4 a. Explain with a block diagram and a timing diagram , the working of synchronous DRAM.
(10 Marks)
   b. Discuss the direct mapped, associated mapped and set associative mapped cache memory system, with suitable diagrams. Define the hit rate and miss penalty.
(10 Marks)

5 a. What is virtual memory? Explain the method of virtual to physical address translation, with the help of a neat diagram.
(08 Marks)
   b. Explain the construction of magnetic hard disks, with a neat sketch. Also, give the phase encoding technique to encode the information to be stored.
(08 Marks)
   c. What is a disk controller? List the standard bus interfaces used with disk storage devices.
(04 Marks)

6 a. Describe the construction of a 16-bit carry-look ahead adder built from 4-bit adders.
(08 Marks)
   b. Multiply 24 and -18 using bit-pair recoding method.
(06 Marks)
   c. Explain the IEEE standards for floating-point numbers.
(06 Marks)

7 a. Give and explain the control sequence required for branch instruction in the single bus architecture.
(08 Marks)
   b. Draw and explain the block diagram of a typical microprogrammed control unit.   (08 Marks)
   c. Discuss the advantages and disadvantages of microprogrammed control.
(04 Marks)

8 a. Draw the block diagram of a digital camera and describe its operation.
(10 Marks)
   b. Draw the structure of a serial-interface in a microcontroller. Explain.
(10 Marks)

* * * * *