Total No. of Questions : 10] [Total No. of Printed Pages : 3

Roll No. .....

CS/EC/IT–401(N)

B. E. (Fourth Semester) EXAMINATION, June, 2011

(Common for CS, EC & IT Engg. Branch)

COMPUTER SYSTEM ORGANIZATION

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note : Attempt any *one* question from each Unit. All questions carry equal marks.

Unit–I

1. (a) Draw the Von-Newman model of a digital computer. Explain its various subsystems. 10

   (b) Explain with the help of examples, the addressing modes of a basic computer. 10

Or

2. (a) Draw and explain the architecture of 8085 microprocessor. 10

   (b) A computer uses a memory unit with 265 K words of 32 bits each. A binary instruction code is stored in one word of memory. The instruction has four parts : an indirect address, an operation code, the register code part to specify one of 64 registers and an address part : 10

   (i) How many bits are there in the operation code, the register code part and the address part ?

P. T. O.

(ii) Draw the instruction word format and indicate the number of bits in each part.

(iii) How many bits are there in the data and address inputs of the memory ?

Unit – II

3. (a) Explain the following terms : 10

(i) Microinstruction
(ii) Microprogram
(iii) Control address register
(iv) Sequencer
(v) Control memory

(b) Explain the concept of address sequencing. Also explain mapping of an instruction. 10

Or

4. (a) Write down the algorithm for addition and subtraction with signed-magnitude data. Also draw the flowchart. 10

(b) Draw and explain 2-bit by 2-bit array multiplier. 10

Unit – III

5. (a) Differentiate between the following : 10

(i) Isolated and memory-mapped I/O

(ii) Synchronous and Asynchronous serial data transfer

(b) Explain polling and Daisy chaining methods for establishing priority interrupt. 10

Or

6. (a) Explain the following modes of data transfer : 10

(i) Program controlled

(ii) Interrupt driven

(iii) Direct memory access

(b) What is an IOP ? Explain the process of communication between a CPU and IOP. 10

Unit – IV

7. (a) Draw and explain the memory hierarchy in a digital computer. What are the advantages of cache memory over main memory ? 10

(b) What is Associative Memory ? Explain the concept of address space and memory space in virtual memory. 10

Or

8. Write short notes on any *two* of the following : 10 each

(a) Mapping techniques of cache memory

(b) Cache initialization and writing into cache

(c) Types of RAM and ROM

(d) Memory management hardware

Unit – V

9. (a) Write down the Flynn's classification of Computers ? 10

(b) What does pipeline, vector and array processors mean in parallel processing ? 10

Or

10. (a) Draw and explain the pipeline for floating point addition and subtraction. 10

(b) Explain the operation of SIMD array processor. 10