

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 ?

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- (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