Roll No .....

EC - 302

B.E. III Semester

Examination, December 2013

Computer System Organization

Time : Three Hours ***Maximum Marks : 70***

Note: 1. Attempt all questions.
2. All questions carry equal marks.

1. a) What are the various types of addressing model? Explain them in short with example. 7
   b) Explain the Von-Neumann model and discuss the functioning of its components. 7

Or

2. a) What is instruction cycle? Explain different phases of instruction cycle? 7
   b) Draw and explain the bus structure for the data transfer between various registers and the common bus. 7

3. a) Draw and explain the microprogrammed control unit with next address generation. 7
   b) Describe the procedure for addition and subtraction for fixed point number. Explain it by use of flowchart. 7

Or

4. a) What is the purpose of microprogram sequencer? Explain its functioning. 7
   b) What is an ALU (Arithmetic Logic Unit)? Draw logic diagram of ALU that performs AND, OR logic operations and ADD, SUB arithmetic operations. 7

5. a) What is DMA ?Describe how DMA is used to transfer data from peripherals. 7
   b) Explain the drawbacks in programmed I/O and interrupt driven I/O. 7

Or

6. a) Differentiate between the following:- 7
   i) Serial and Parallel data transfer
   ii) Synchronous and Asynchronous data transfer.
   b) What are the functions performed by an I/O interface? Explain with an example. 7

7. a) What is cache memory? How is it organized by direct mapping? Explain? 7
   b) Write short notes: 7
   i) Virtual memory
   ii) Memory Management Hardware.

Or

8. a) Explain associative memory with its hardware organization. Explain how the data in read and write in the associative memory. 7
   b) 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. How many bits there in the tag index, block and word field of the address format. 7

9. a) Formulate a six segment instruction pipeline for a computer. Specify the operation to be performed in each segment. 7
   b) Explain the interprocessor communication using message passing. 7

10 a) Write short notes:- 7
   i) Loosely coupled multiprocessor configuration.
   ii) Closely coupled multiprocessor configuration.
   b) Explain the Flynn's classification of parallel processing? 7

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