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10CS

**Fourth Semester B.E. Degree Examination, June/July 2015**  
**Computer Organization**

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, selecting atleast TWO questions from each part.

**PART - A**

- 1 a. With a neat diagram, explain the different processor registers. (08 Marks)
- b. List and explain the technological features and devices improvement made during different generations of computers. (08 Marks)
- c. What are the factors that affect the Performance? Explain any four. (04 Marks)
- 2 a. What is an addressing mode? Explain any four addressing modes, with an example for each. (08 Marks)
- b. Explain shift and rotate operations with example. (08 Marks)
- c. Explain Big – endian and Little – endian method of byte addressing with an example. (04 Marks)
- 3 a. Define Exceptions. Explain two kinds of exceptions. (04 Marks)
- b. Define bus arbitration. Explain in detail any one approach of bus arbitration. (08 Marks)
- c. Draw and explain the general 8 bit parallel processing. (08 Marks)
- 4 a. Explain the following with respect to USB : i) USB Architecture ii) USB Addressing iii) USB Protocols. (09 Marks)
- b. Briefly discuss the main phases involved in the operation of SCSI bus. (06 Marks)
- c. Explain distributed Bus arbitrations. (05 Marks)

**PART - B**

- 5 a. Define : i) Memory Latency ii) Memory bandwidth iii) Hit – rate iv) Miss Penalty. (04 Marks)
- b. Explain the different cache mapping functions. (10 Marks)
- c. Explain any one feature of memory design that leads to improved performance of computer. (06 Marks)
- 6 a. With a neat diagram, explain the virtual memory organization. (08 Marks)
- b. Design a logic circuit to perform addition / subtraction of two 'n' bit numbers X and Y. (04 Marks)
- c. Explain Booth Algorithm. Apply Booth Algorithm to multiply the signed numbers +13 and -6. (08 Marks)
- 7 a. Explain the different arithmetic operations on floating point numbers. (06 Marks)
- b. Perform division of number 8 by 3 ( $8 \div 3$ ) using the restoring division algorithm. (06 Marks)
- c. Explain the process of fetching a word from memory along with a timing diagram. (08 Marks)
- 8 a. Briefly explain the structure of General Purpose Multiprocessor. (08 Marks)
- b. List different types of Networks. Explain any four. (08 Marks)
- c. Give a brief description on performance consideration with an example. (04 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
 2. Any revealing of information, calculation, appeal to evaluator and/or equations written eg.  $\frac{1}{2}$ , will be treated as malpractice.

Highly