USN | | | | | | | | | | **10CS46**

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.   **(08 Marks)**
   c. Explain Booth Algorithm. Apply Booth Algorithm to multiply the signed numbers +13 and -6.   **(04 Marks)**

7 a. Explain the different arithmetic operations on floating point numbers.   **(06 Marks)**
   b. Perform division of number 8 by 3 (8 ÷ 3) using the restoring division algorithm.   **(08 Marks)**
   c. Explain the process of fetching a word from memory along with a timing diagram.   **(06 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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