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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. (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)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8=50, will be treated as malpractice.