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

Fourth Semester B.E. Degree Examination, June/July 2017
Computer Organisation

Time: 3 hrs.   Max. Marks:100

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

PART – A

1 a. Explain in brief different types of key parameters that affect the processor performance. **(05 Marks)**
   b. Draw and explain the connection between memory and processor, with the respective register. **(05 Marks)**
   c. List the different systems used to represent signed numbers. Perform the following operations on the 5 – bit signed numbers using 2's compliment representation system
      i) (-8) + (-12)   ii) (-6) – (+2)   iii) (-8) – (+3).   **(10 Marks)**

2 a. What is Little endian and Big endian memory? Represent any 32 bits number in big endian and little endian memory. **(05 Marks)**
   b. Write an assembly language program to convert unpacked BCD number to packed BCD number. **(05 Marks)**
   c. With example, explain any four addressing modes. **(05 Marks)**
   d. With example, explain Logical shift and Arithmetic shift instruction. **(05 Marks)**

3 a. What is IO mapped IO and memory mapped IO? Explain them in briefly. **(05 Marks)**
   b. With figure, explain Distributed Arbitration in detail. **(10 Marks)**
   c. What are the different methods of DMA? Explain them in brief. **(05 Marks)**

4 a. With a block diagram, explain how output device is interfaced to processor. **(10 Marks)**
   b. Explain with Timing signal of read operation on PCI (Peripheral Component Interconnect) bus by showing role of IRDY/TRDY. **(10 Marks)**

PART – B

5 a. With figure, explain Internal structure of Static memory. **(05 Marks)**
   b. With figure, explain Internal organization of 2M × 8 dynamic memory chip. **(10 Marks)**
   c. Explain in detail the Associative mapping of cache memory. **(05 Marks)**

6 a. Design and explain 4 bit carry look ahead adder. **(10 Marks)**
   b. Perform signed multiplication of numbers (+13) and (-6) by using bit pair recoding technique. **(05 Marks)**
   c. Explain with example IEEE standard for floating point numbers. **(05 Marks)**

7 a. List out the action needed to execute the instruction add (R_3), R_1. Write and explain sequence of control steps for the execution of the same. **(10 Marks)**
   b. With figure, explain Control Unit Organization. **(10 Marks)**

8 a. Explain the classic organization of a shared memory multiprocessor. **(10 Marks)**
   b. Explain the different approaches used in multithreading. **(10 Marks)**

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