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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 complement 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 $2M \times 8$ 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)
