

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 $2M \times 8$ 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)

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.