

CBCS SCHEME

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BANGALORE - 560 037

15CS34

Third Semester B.E. Degree Examination, June/July 2018

Computer Organization

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing one full question from each module.

Module-1

- 1 a. Define Addressing Mode. Give the details of different addressing modes. (08 Marks)
b. Describe the basic operational concepts between the processor and memory. (08 Marks)

OR

- 2 a. What is Subroutine? How to pass parameters to subroutines? Illustrate with an example. (08 Marks)
b. How to encode assembly instructions into 32-bit words? Explain with examples. (08 Marks)

Module-2

- 3 a. Define Bus Arbitration. With diagrams, explain the centralized bus arbitration mechanism. (08 Marks)
b. With the help of timing diagram, briefly discuss the main phases of SCSI bus involved in its operation. (08 Marks)

OR

- 4 a. With neat diagrams, explain how to interface printer to the processor. (08 Marks)
b. Explain the following methods of handling interrupts from multiple devices.
i) Interrupt nesting/priority structure ii) Daisy chain method. (08 Marks)

Module-3

- 5 a. Describe how to translate virtual address into physical address with diagram. (08 Marks)
b. Draw and explain the internal organisation of $2M \times 8$ asynchronous DRAM chip. (08 Marks)

OR

- 6 a. Describe any two mapping functions in cache. (08 Marks)
b. Describe the principles of magnetic disk. (08 Marks)

Module-4

- 7 a. Perform the operations on 5 – bit signed numbers using 2's complement system. Also indicate whether overflow has occurred. (06 Marks)
i) $(-10) + (-13)$ ii) $(-10) - (-13)$ iii) $(-2) + (-9)$.
b. Perform the multiplication of 13 and -6 using Booth algorithm and Bit – pair recoding method. (10 Marks)

OR

- 8 a. Perform the restoring division for $8 \div 3$ by showing all the steps. (06 Marks)
b. Explain the logic diagram of 4 – bit carry look ahead adder and its operations. (10 Marks)

Module-5

- 9 a. Draw and explain multiple bus organization along with its advantages. (10 Marks)
b. Write down the control sequence for the instruction Add (R_3), R_1 for single bus organization. (06 Marks)

OR

- 10 a. With block diagram, explain the general requirements and working of digital camera. (10 Marks)
b. Write the control sequence for an unconditional branch instruction. (06 Marks)

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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.