

CBCS SCHEME

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15CS34

Third Semester B.E. Degree Examination, Dec.2019/Jan.2020 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. With a neat diagram, explain the connection between processor and memory. (08 Marks)
b. Explain: (i) Processor clock (ii) Clock rate (08 Marks)
(iii) Basic performance equation (iv) Performance measurement

OR

- 2 a. List the addressing modes with assemble syntax and addressing functions. (08 Marks)
b. Explain basic input output operation. Write a program to read a line of character and display it. (08 Marks)

Module-2

- 3 a. Explain the interrupts with hardware. Write the steps in enabling and disabling interrupts. (08 Marks)
b. Explain the issues in handling the multiple devices in interrupts. (08 Marks)

OR

- 4 a. With a neat diagram, explain DMA and different types of bus arbitrations. (08 Marks)
b. Explain USB tree structure and protocols. (08 Marks)

Module-3

- 5 a. Draw the internal organization of a $2M \times 8$ dynamic memory chip. Explain fast page mode. (08 Marks)
b. Explain the mapping functions used in cache memory. (08 Marks)

OR

- 6 a. What is memory interleaving? Explain with example. (08 Marks)
b. What is virtual memory? Explain the address translation. (08 Marks)

Module-4

- 7 a. Design 4-bit carry look ahead adder and explain. (08 Marks)
b. Explain Booth recoding of a multiplier. Perform $(+13) \times (-6)$ using Booths algorithm. (08 Marks)

OR

- 8 a. Explain logic and circuit arrangement for implementing restoring division. (08 Marks)
b. Write the rules for arithmetic operations on floating point operations. (08 Marks)

Module-5

- 9 a. With a neat diagram, explain single bus organization of data path inside the processor. (08 Marks)
b. Write actions required and control sequence for execution of instruction ADD (R_3), R_1 . (08 Marks)

OR

- 10 a. Briefly explain the block diagram of microwave oven. (08 Marks)
b. Explain the different possible ways of implementing a multiprocessor system. (08 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.