

CBCS Scheme

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16MCA14

First Semester MCA Degree Examination, June/July 2017 Computer Organization

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. Convert each of the following : i) $(23)_{10} = ()_2$ ii) $(3FD)_{16} = ()_2$. (04 Marks)
b. Explain with a neat diagram and truth table for basic gates. (06 Marks)
c. Construct the corresponding expression logic circuit using Basic gates and write truth table $y = A(B+C)$. (06 Marks)

OR

- 2 a. Simplify using Karnaugh maps :
i) $f(w, x, y, z) = \Sigma(0, 4, 5, 7, 8, 9, 13, 15)$ ii) $f(x, y, z) = \Sigma(0, 2, 3)$. (08 Marks)
b. Solve using Boolean expression using Sop $F(A, B, C) = A + B\bar{C}$. (08 Marks)

Module-2

- 3 a. Explain with circuit diagrams and truth table full – adders. (08 Marks)
b. Explain with circuit diagram and truth table NAND and NOR implementation. (08 Marks)

OR

- 4 a. Explain with a circuit diagram of 4 bit parallel sub tractor. (08 Marks)
b. Simplify using Don't care condition $f(A, B, C, D) = \pi(0, 2, 3, 8, 10, 11) + d(1, 9, 13)$. (08 Marks)

Module-3

- 5 a. Explain with a neat diagram of Functional units. (08 Marks)
b. Explain with a neat diagram of Single Bus structure. (04 Marks)
c. Explain Basic performance equation. (04 Marks)

OR

- 6 a. Explain any 4 different types and examples of Addressing modes. (08 Marks)
b. Explain different types of Address Instruction, with example. (08 Marks)

Module-4

- 7 a. Explain with a neat diagram I/O interface for an input device. (08 Marks)
b. Explain with a neat diagram Interrupt priority using separate Interrupt – Request and Acknowledge lines. (08 Marks)

OR

- 8 a. Explain with a neat diagram of DMA controller. (08 Marks)
b. Explain with a neat diagram of Synchronous Bus. (08 Marks)

Module-5

- 9 a. Explain Cache memories. (08 Marks)
b. Explain different types of ROM. (08 Marks)

OR

- 10 a. Explain with neat diagram, static RAM cell. (08 Marks)
b. Explain with neat diagram, Dynamic memories. (08 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.