# CBCS Scheme

## 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
         $y = \overline{A(B+C)}$.   **(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 $F(A, B, C) = A + B\overline{C}$.   **(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)**

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