CBCS Scheme

USN | | | | | | | | | | |

16MCA14

First Semester MCA Degree Examination, Dec.2016/Jan.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 the following:
i) $(41)_{10} = (?)_2$
ii) $(0.6875)_{10} = (?)_2$
iii) $(10110001101011)_2 = (?)_{16}$
iv) $(B65F)_{16} = (?)_{10}$
v) $(306.D)_{16} = (?)_2$ **(10 Marks)**

b. Subtract the following:
i) Using 10's complement subtract 72532 – 3250.
ii) Using 2's complement subtract 1010100 – 1000011. **(06 Marks)**

OR

2 a. State the following Boolean postulates:
i) Closure ii) Associate law iii) Commutative law
iv) Identity law v) Inverse vi) Distributive law **(06 Marks)**

b. Express the Boolean function F = A + B'C in sum of minterms. **(04 Marks)**

c. Using K-map simplify the Boolean function F(w, x, y, z) = $\sum$ (0, 1, 2, 4, 6, 8, 9, 12, 13, 14). **(06 Marks)**

Module-2

3 a. Implement the following function using NAND gate:
i) $F = x'y'z' + xyz'$ ii) $xy' + x'y$ **(04 Marks)**

b. Giving circuit diagram, truth table construct a half adder. **(06 Marks)**

c. What is multiplexer? With block diagram and logic diagram, explain 4 to 1 line multiplexer. **(06 Marks)**

OR

4 a. Explain RS flip-flop using NOR gates. **(06 Marks)**

b. What is decoder? Construct a 3 to 8 line decoder. **(10 Marks)**

Module-3

5 a. With neat diagram, explain basic functional unit of a computer. **(06 Marks)**

b. Explain big-endian and little-endian assignments. **(06 Marks)**

c. Explain the basic instruction types. **(04 Marks)**

OR

6 a. What are condition codes? Explain various condition code flags. **(06 Marks)**

b. Explain any five addressing modes. **(10 Marks)**

Module-4

7	a.	Write a note on assembler directives.	(06 Marks)
	b.	Explain logical shift instructions.	(10 Marks)

OR

8	a.	With diagram, explain I/O interface for an input device.	(06 Marks)
	b.	Explain various registers used in DMA interface.	(10 Marks)

Module-5

9	a.	With a neat diagram, explain 16 × 8 memory organization.	(10 Marks)
	b.	Write a note on RAM.	(06 Marks)

OR

10	a.	Define ROM cell and explain various types of ROM.	(08 Marks)
	b.	Explain with diagram the connection of memory to the process.	(08 Marks)

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