

M.C.A DEGREE EXAMINATIONS: JANUARY 2011

First Semester

MASTER OF COMPUTER APPLIATIONS

MCA501: Computer Organization

Time: Three Hours**Maximum Marks: 100****Answer ALL Questions:-****PART A (10 x 2 = 20 Marks)**

1. Convert the following binary number to decimal 101110, 1110101
2. What are the Universal Gates? Why it is so called?
3. Draw a block diagram of a 3 x 8 Decoder using two 2 x 4 Decoders
4. What are the two ways to construct a bus system?
5. Define instruction code
6. What are the different categories of programs can be written for computers?
7. Write the major difference between central computer and peripheral devices
8. List the different modes of data transfer
9. Draw a block diagram of memory hierarchy in computer system
10. Define Content Addressable Memory (CAM)

PART B (5 x 16 = 80 Marks)

11. a) (i) Simplify the following Boolean function using four – variable map

$$F(A, B, C, D) = \sum(0, 2, 4, 5, 6, 7, 8, 10, 13, 15)$$
 (8)
 (ii) Write a short note on Complements and illustrate with example various types of Complements. (8)
 (OR)
- b) (i) Draw block diagram for Full – Adder and describe its functionalities (8)
 (ii) Explain JK flip-flop in detail (8)
12. a) (i) Explain Multiplexer with neat diagram (8)
 (ii) Describe Binary Counter (8)
 (OR)
- b) (i) Design and describe Arithmetic and Logic Shift unit (8)
 (ii) Write short note on Register Transfer (8)
13. a) Explain Instruction Cycle in detail with neat diagram (OR)
 b) Explain about Assembler
14. a) Describe in detail about Asynchronous Data Transfer (OR)
 b) Explain DMA with neat diagram
15. a) Define Cache memory. Explain different mapping techniques used in cache memory (OR)
 b) (i) Discuss Register Stack Organization (8)
 (ii) Explain different Addressing Modes (8)
