Register Number……...

M.C.A. DEGREE EXAMINATIONS: DECEMBER 2009

First Semester

MCA501: COMPUTER ORGANIZATION

Time: Three Hours **Maximum Marks: 100**

Answer ALL the Questions:-

PART A (10 x 2 = 20 Marks)

1. Perform the arithmetic operations (-6) + (+13) and (-6) + (-13) in binary using signed 2's complement representation for negative numbers.
2. Find the equivalent numbers.

   $(AB)_H = (\quad)_{10} = (\quad)_8 = (\quad)_2$
3. Define Micro operation.
4. What is Encoder?
5. What is the advantage of program interrupt?
6. Write an assembly language program to add two numbers.
7. What is hand shaking signal in asynchronous data transfer?
8. Differentiate synchronous and asynchronous data transfer.
9. How many 128 x 8 RAM chips are needed to provide a memory capacity of 2048 bytes?
10. Define Hit ratio.

PART B (5 x 16 = 80 Marks)

11. (a) Write note on Flip Flop? Explain in detail about JK Flip Flop and T-Flip Flop with suitable diagram and characteristic table.

(OR)

(b) Why do you need to know about Karnaugh map? Explain in detail about map for two, three and four variable function with example.

12. (a) What is Shift Registers? With neat diagram, explain in detail about Bidirectional Shift Register with Parallel Load.

(OR)

(b) Explain in detail about 4-bit arithmetic circuit with block diagram and Function Table.

13. (a) Write short note on Instruction Cycle? Discuss in detail about register transfers for the fetch phase with neat diagram.

(OR)

(b) Explain in detail the 2 passes in an assembler?

14. (a) Describe the block transfer between memory and I/O using DMA controller.

(OR)

(b) Explain in detail about priority controller with neat diagram?

15. (a) What is Virtual memory? Explain how is it implemented using paging?

(OR)

(b) (i) Explain about Data manipulation instruction? (8)

(ii) Write note on Stack organization? List and explain the micro operations required for implementing push and pop operations. (8)

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