



MCA DEGREE EXAMINATIONS: JUNE 2015

(Regulation 2013)

First Semester

MASTER OF COMPUTER APPLICATIONS

P13CAT101: Computer System Architecture

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 2 = 20 Marks)

1. Draw the logical diagram of the Boolean function $F = AB + A'C$.
2. Write the algebraic function and truth table of NOR gate
3. Differentiate register with buffer.
4. What is shift register?
5. What are the steps in executing program?
6. Define bus.
7. What do you mean by DMA?
8. What is motherboard?
9. Compare static ram with dynamic ram?
10. What is the use of cache memory?

Answer any FIVE Questions:-

PART B (5 x 16 = 80 Marks)

Q.No:11 is Compulsory

11. Simplify the following Boolean functions in product of sum form by means of a four-variable map. Draw the logic diagram with
a) AND-OR gates; b) NAND gates.

$$F(A,B,C,D) = \sum(2,3,4,5,6,7,11,14,15)$$

12. i) Discuss in detail about the following flip flops i) D Flip flop (10)
ii) SR flip flop iii) JK flip flop
- ii) What do you mean by combinational circuit? Draw the block diagram, (6)
logic diagram and truth table of half adder and full adder and explain it.
13. Explain in detail about instruction cycle and draw the flow chart for
instruction cycle.
14. Brief note on the priority interrupt with suitable example.
15. Describe in detail about auxiliary memory with suitable diagrams.
16. Discuss in detail about direct memory access with neat diagram.
