MAY 2015 **P/ID 17502/PCASB**

Time : Three hours Maximum : 100 marks

PART A — (6 × 5 = 30 marks)

Answer any SIX questions.

1. Write the first 20 decimal digits in base 3.

2. Convert the following decimal numbers to binary :

   (a) 12.0625

   (b) 10^4

   (c) 673.23

   (d) 1998.

3. Give the truth table of a 3-to-8 line decoder.

4. Describe ROM with a block diagram.

5. Describe clocked JK flip-flop.

6. Write about clocked RS flip-flop.

7. Give the block diagram of a processor unit.

8. Describe the block diagram of a PLA control.

PART B — (7 × 10 = 70 marks)

Answer any SEVEN questions.

9. Obtain the 9's and 10's complement of the following decimal numbers :
   (a) 13579
   (b) 09900
   (c) 90090
   (d) 10000
   (e) 00000.

10. Summarize the basic theorems and properties of Boolean algebra.

11. Illustrate the steps required in PLA implementation.

12. Describe a 4-to-1 line multiplexer.

13. Explain edge-triggered flip-flop.

14. Illustrate a 4 bit binary ripple counter.

15. Explain the process of a shifter.

16. Describe scratch pad memory.

17. Explain timing and control in computer design.

18. Describe the micro program control unit for computer.

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