

**7206/A13**

**OCTOBER 2008**

**DIGITAL PRINCIPLE AND APPLICATIONS**

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Time : Three hours

Maximum : 100 marks

PART A — (6 × 5 = 30 marks)

Answer any SIX questions.

1. Explain Binary subtraction with example.
2. Why Binary Numbers are used?
3. Convert the following hexadecimal numbers into binary and decimal numbers.
  - (a) FAB
  - (b) 49.E.
4. Write the logic symbol of NAND gate with truth table.
5. Explain Boolean algebra, Positive and Negative logic system.
6. Explain Demultiplexer with suitable diagram.
7. Explain Seven segment Indicator.

8. Explain the Parallel Binary adder with suitable diagram.
9. What is meant by switching time?
10. Explain D-flip or D latch.

PART B — (4 × 10 = 40 marks)

Answer any FOUR questions.

11. Find the binary and Octal representation of decimal numbers.

(a) 235.84

(b) 750

12. What are the Universal gates?
13. State and prove Distributive laws of Boolean algebra.
14. Explain multiplexer with suitable example.
15. Explain 2's Complement subtraction with example.
16. Design a Mod 10 counter using a Mod 5 counter and a Mod 2 counter.

PART C — (2 × 15 = 30 marks)

Answer any TWO questions.

17. (a) Represent the Binary (1101110.0110) into Hexadecimal and Decimal.  
(b) Represent the Octal number (735.64) into Hexadecimal.
18. (a) State and prove Duality theorem.  
(b) Explain the steps involved in simplifying Boolean expression using K-Map.
19. (a) Briefly explain Parity Generators and Parity Checkers.  
(b) Explain JK — Master Slave flip—flop.