

Register Number :

Name of the Candidate :

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B.Sc. DEGREE EXAMINATION, 2008

(ELECTRONIC SCIENCE)

(THIRD YEAR)

(PART - III - A - MAIN)

(PAPER - IV)

720. DIGITAL ELECTRONICS

December]

[Time : 3 Hours

Maximum : 100 Marks

PART - A (5 × 4 = 20)

Answer any FIVE questions.

All questions carry equal marks.

1. Draw the truth table for a three input NAND gate.
2. Write a note on hexadecimal number.
3. Explain the use of Karnaugh maps.

Turn over

4. Write a brief note on SOP forms of expressions.
5. Give a circuit of a half subtractor and explain its function.
6. Explain the working of a R-S flip flop.
7. What is a ring counter/ Explain its working.
8. What is DAC ? Explain the characteristics of a DAC.

PART - B (5 × 16 = 80)

Answer any FIVE questions.

All questions carry equal marks.

9. State and prove De-Morgan's theorems. Realize the two De-Morgan's theorems using logic gates.
10. With the truth table explain the function of the following logic gates :
 - (i) AND gate.
 - (ii) OR gate.
 - (iii) NOR gate.
 - (iv) NOT gate.
 - (v) XOR gate.

11. Construct a K-map for the sum output of a full adder and reduce it. Also, draw the logical diagram of the reduced expressions.
12. Draw the circuit of a
 - (i) half-adder
 - and (ii) full adder.
 Explain their working with the truth table.
13. What is demultiplexer ? Discuss its working with a block diagram.
14. Give the circuit of
 - (i) J - K flip-flop and
 - (ii) T flip-flop.
 Explain the working with truth table.
15. Discuss the function of a shift register and explain how a 4-bit number 1101 is shifted. Represent the shifting by the truth table.
16. Draw the circuit of a binary ladder D/A converter and explain its working.