



SN – 449

17

I Semester B.C.A. Degree Examination, November/December 2014

(Y2K14 – CBCS Scheme)

Computer Science

BCA 104 T : DIGITAL ELECTRONICS



Time : 3 Hours

Max. Marks : 70

Instruction : Answer all Sections.

SECTION – A

Answer **any ten** questions.

(2×10=20)

1. Define the terms short circuit and open circuit.
2. What are the different types of network ports ?
3. What is a semiconductor ? Give example.
4. How are solids classified ?
5. Convert B64.53 to binary.
6. Define minterm and maxterm.
7. Simplify the following Boolean expressions $\overline{(A + B)} + CD$.
8. What is an X-OR gate ? Give the truth table and logic symbol of X-OR gate.
9. What is a combinational circuit ? Give example.
10. What is an adder ? Give the logic diagram of half adder circuit.
11. Mention the two applications of D Flip-flop.
12. Define the terms propagation delay and hold time.

SECTION – B

Answer **any 5** questions.

(10×5=50)

1. a) State and explain Superposition theorem.
b) What is series parallel circuit ? Explain.

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P.T.O.



2. a) Explain P-N junction with a neat diagram. 5
b) Write a note on extrinsic semiconductors. 5
3. a) Explain the characteristics features of IC family gates. 5
b) State and prove De-Morgan's theorems. 5
4. a) Convert the following : 6
i) $(453.26)_{10} = (\quad)_2, (\quad)_8$
ii) $(1101.110)_2 = (\quad)_8, (\quad)_{16}$
b) Simplify the following into POS using K-Map
 $F(A B C D) = \Sigma(0, 2, 3, 5, 11, 13) + \Sigma D(1, 7, 10)$. 4
5. a) Prove NAND and NOR gates as universal gates. 6
b) With a logic diagram explain decimal to BCD encoder. 4
6. a) Write a note on parity checker and parity generator. 5
b) With a neat diagram explain 4-bit parallel binary adder. 5
7. a) Explain the working of J-K flip-flop with a neat diagram. 5
b) Differentiate between a latch and a flip-flop. 5
8. a) Explain SISO shift register with a diagram. 5
b) Write a note on applications of shift registers. 5
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