

DISTANCE EDUCATION
B.C.A. DEGREE EXAMINATION, MAY 2010.
ELECTRONIC DEVICES AND DIGITAL CIRCUITS
(2003 onwards)

Time : Three hours

Maximum : 100 marks

Answer any FIVE questions.

1. (a) List the salient features of the BCD, Excess-3 and Gray Codes.
(10)
- (b) Convert the following.
 - (i) $(4097.188)_{10} = (?)_2$
 - (ii) $(465)_8 = (?)_{10}$
 - (iii) $(5C8)_{16} = (?)_{10}$
 - (iv) $(23107)_8 = (?)_8$. (10)
2. (a) Subtract the following using 2's complement.
 - (i) $29 - 19$
 - (ii) $19 - 43$
 - (iii) $-33 - 57$
 - (iv) $39 - 21$. (10)
- (b) State and prove Absorption and Simplification theorems.
(10)
3. (a) Write the expression for a four input AND gate. Construct the complete truth table. (10)
- (b) (i) What is an XOR gate? Write its truth table. (5)
(ii) What is a logic gate? Explain. (5)

4. (a) Prove the following equations using Boolean Algebra : Ws5
- (i) $AB + ABC + \bar{A}B + A\bar{B}C = B + AC$. (5)
- (ii) $(A + B)(\bar{A} + C) = AC + \bar{A}B$. (5)
- (b) Write in detail about decimal adder. (10)
5. (a) Explain in detail about JK Flip Flop. (10)
- (b) Describe the Shift Counters in detail. (10)
6. (a) Design a mod-15 ripple counter and draw the truth table. (10)
- (b) Explain 4-bit serial IN-Serial OUT Shift register with neat diagram. (10)
7. (a) Discuss about circuit characteristics of a MOSFET and a FET. (10)
- (b) Discuss about various functional blocks of an Integrated amplifier. (10)
8. (a) Explain Junction Field Effect Transistor (JFET). (10)
- (b) Explain Oscillators with neat diagram. (10)
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