

# END TERM EXAMINATION

SECOND SEMESTER [BCA] MAY-JUNE 2016

Paper Code: BCA-106

Subject: Digital Electronics

Time : 3 Hours

Maximum Marks :75

**Note: Attempt any five questions.**

- Q1 (a) Define Boolean algebra. Give its five laws. (5x3=15)  
(b) Explain K-map. Give the steps involved for simplification of Boolean equations.  
(c) Define gray codes and excess - 3 codes. How to convert a binary code into excess - 3 code? Also give their applications.
- Q2 (a) Explain Full adder with truth table and logic diagram. (7)  
(b) Explain the concept of binary multiplier with example and diagram. (8)
- Q3 (a) Give the steps to convert Binary code to gray code. (9)  
(b) Explain SR flip flop with NAND gate. Give its truth table. (6)
- Q4 (a) Differentiate De-Multiplexer and decoder. (6)  
(b) How JK flip-flop can be realized using SR flip-flop. (9)
- Q5 (a) Define shift registers and its types. Explain Bi-directional shift register in detail. (10)  
(b) Define the Race-around condition. Give the methods to overcome from it. (5)
- Q6 (a) Explain 4-bit ripple counter with waveform and truth table. (9)  
(b) Differentiate RAM and ROM. (6)
- Q7 (a) Explain 4:1 multiplexer with equation and gates. (5)  
(b) Define the concept of PLA and its applications. (5)  
(c) Differentiate combinational and sequential circuits. (5)
- Q8 (a) Explain modulo-10 counter with truth table and waveform. (7.5)  
(b) Explain the working of serial in-parallel out shift register with logic diagram and waveform. (7.5)

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