(Please write your Exam Roll No.) *Exam Roll No. .....*

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 Binay 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-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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