

Code No. 7072

FACULTY OF SCIENCE

B.Sc. (CBCS) III – Semester Examination, December 2017

Subject : COMPUTER SCIENCE

Paper – III (SEC-I)

B : Boolean Algebra

Max. Marks : 40

Time : 1 ½ hours

Answer all questions from Part-A and Part-B.

Part – A (2 X 5 = 10 Marks)
(Short Answer Type)

1. a) Convert the decimal numbers 231 and 763 to binary numbers.
OR
b) State and prove the DeMorgan's laws using truth tables.
2. a) Explain the Exclusive-OR and equivalence operations.
OR
b) Find the min-term expansion of $f(a,b,c,d) = a'(b' + d) + acd'$.

Part – B (2 X 15 = 30 Marks)
(Essay Answer Type)

3. a) i) Explain the addition of 2's complement binary numbers with example.
ii) Write the gray codes and Excess-3 codes for decimal digits 0 to 9.
OR
b) i) Explain the basic operations of Boolean algebra with truth table and symbols.
ii) Simplify the following expressions using basic Boolean identities :
 $A'B'C + (A'B'C)'$ and $(A'B + CD')(A'B + CE)$.
4. a) Explain the algebraic simplification of switching expressions and prove the validity of an equation with suitable examples.
OR
b) Explain the design and implementation of full adder.
