Printing Page(s) : 1 **Paper Code :DCS-217**

Roll No. | | | | | | | | | | |

ADCA-12
2nd Year Examination, Calendar Batch 2016
Discrete Mathematics

Time : 3 Hours] *[Max. Marks : 100*

***Note**. Attempt any **five** questions. Each questions carry equal marks.*

Q.1 Linear sum W1+ W2 of two subspaces W1and W2 of a vector spaceV(F) is A subspace of V(F).

Q.2. Explain the "AND, "OR" & NOT operators with logic diagram and truth table.

Q.3. Draw the tree for the following algebraic expression:
(a) (3a+7b)(4c+8d)
(b) (a*(b*c))+d/e
(c) $(8x+4y)^5(3a+5b)^6$

Q.4. Prove that G = { 1,2,3,4,5,6} is a finite abelian group of order 6 under multiplication modulo 7.

Q.5. Construct the Truth Table of the following:
(a) (p ^ Q)^(Q^R)^(R^S)
(b) (7P^(7QVS))V(R^S)^(SVR)

Q.6. Show that inverse of an element a in a group G is unique.

Q.7. Let T:v →w be a linear transformation. Then T is onto iff p(T)= dim w.

Q.8. Differentiate between the following with example-
(a) Graph Vs Diagraph
(b) Pendent vertex Vs Isolated Vertex
(c) Finite Graph Vs Infinite Graph
(d) Walk Vs Path