

## Assignment - 1

1. (a) Simplify the following Boolean function to minimum number of literals using rules of Boolean algebra.

$$y(w\bar{z} + wz) + xy.$$

- (b) Express the Boolean function  $F = xy + \bar{x}z$  as a product of maxterms.
- (c) Simplify (Using Map method) the Boolean function  $F$  together with the don't care conditions d in (i) sum of products and (ii) product of sums.  
 $F(A, B, C, D) = \sum(0, 1, 2, 3, 7, 8, 10) + \sum d(5, 6, 11, 15)$
- (d) Simplify the following Boolean functions using tabulation method.

$$F(w, x, y, z) = \sum(0, 1, 2, 5, 7, 8, 9, 10, 13, 15)$$

- (e) Determine the value of base  $x$  if  
 $(211)_x = (152)_8$

- (f) Find the 10's complement of 132900.

- (g) Perform the arithmetic operations  $(+42) + (-13)$  and  $(-42) - (-13)$  in binary using signed 2's complement representation for negative numbers.

$$[2 + 3 + 5 + 10 + 5 + 1 + 5]$$