King Fahd Univesity of Petroleum & Minerals
Department of Electrical Engineering

EE200-03 (062)

Homework # 4

1. Simplify the following Boolean function, which is given in a product of maxterms form, together with the don't care conditions, first in SOP, then in POS forms. Implement the function using two level NAND-NAND.

   $F(w, x, y, z) = \Pi(0,2,3,4,6,7,11,15)$

   with don't care conditions $d(w, x, y, z) = \Sigma(5,12,13,14)$

2. Design a combinational circuit with three inputs (*x*, *y*, *z*) and one output (*F*). The output is 1 when the binary value of the inputs is greater than 3. The output is 0 otherwise.

3. Design a combinational circuit that converts a 4-bit Gray code (Table 1-6 of the textbook) to a 4-bit binary number. Implement the circuit with exclusive-OR gates. (Use the letters *w*, *x*, *y*, *z* to represent the inputs and *A*, *B*, *C*, *D* to represent the outputs).