

King Saud University College of Engineering Electrical Engineering Department EE208: Logic Design Mid Term Exam: Part#1 Time allowed: 60 Min

1st Semester 1425H

## Question 1:

a) Determine the largest number among the following numbers

(1001 0011 0101)<sub>BCD</sub>,

 $(1647)_8$ 

 $(3A7)_{H}$ 

b) Perform the following operations using signed 7-bit binary numbers and detect if there is any overflow or underflow cases

$$20 + 52 = ?$$

$$35 - 46 = ?$$

$$-18 - 50 = ?$$

## Question 2:

a) Simplify the following logic function using Boolean Algebra and draw the final circuit using only 2 inputs logic gates

$$F(A,B,C,D) = AB\overline{C}D + AB(\overline{C}+D) + A(BC+CD)$$

b) Simplify the following function using K-map and draw the final circuit using a minimum number of gates

$$F(X, Y, Z, W) = \sum (0, 2, 5, 7, 8, 10, 12, 14)$$