	Q#1	Q#2	Total Marks

King Saud University   EE208: Logic Design
College of Engineering   Mid Term Exam: Part#1
Electrical Engineering Department   Time allowed: 60 Min
Student name: Student ID: 1st Semester 1426H-1427H

Question 1:

a) Convert $(1000\ 0011\ 1001)_{BCD}$ to its equivalent binary code

b) Perform the following operations using 6-bit signed binary numbers and detect if the overflow or underflow cases? (*hint*: use 2's complement for negative numbers)

$-16-17 = ?$

$30 - 18 = ?$

$18 + 24 = ?$

Answer to question 1:

Question 2:

a) Convert the following POS expression to its equivalent SOP expression

$$F(a,b,c) = (a + \overline{b} + c)(\overline{a} + b + c)(a + b + c)$$

b) Minimize the following function using K-map and draw the circuit diagram using NAND gates only

$$F(x, y, z, w) = \sum m(2,3,4,7,9,11) + \sum d(6,10,12,14,15)$$

Answer to question 2: