CS2100 Assignment 3 Answer Book

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Save this file as AxxxxxxxY.pdf and submit on Canvas. You do NOT need to create a zip file.

You will forfeit up to 3 marks if you do not fill your particulars above, or do not follow the submission instructions.

Submission information: _____ / 3

Question 1. (6 MARKS)

(a) (2 marks) $F(A,B,C,D) = \mathbf{\Sigma m(}$ 6, 15 $\mathbf{)}$

(b) (2 marks) $G(A,B,C,D) = \mathbf{\Sigma m(}$ 8, 10, 12 $\mathbf{)}$

(c) (2 marks) $H(D,C,B,A) = \mathbf{\Sigma m(}$ 10, 11, 15 $\mathbf{)}$

Q1 Total: _____ / 6

Question 2. (6 MARKS)

(a) (2 marks) $X(A,B,C) = \mathbf{\Pi M(}$ 0, 3, 6, 7 $\mathbf{)}$

(b) (2 marks) $Y(A,B,C,D) = \mathbf{\Pi M(}$ 0, 1, 2, 3, 6, 7, 8, 10, 11, 13, 14, 15 $\mathbf{)}$

(c) (2 marks) $Z(C,B,A) = \mathbf{\Pi M(}$ 1, 2, 4, 6 $\mathbf{)}$

Q2 Total: _____ / 6

Question 3. (7 MARKS)

(a) (3 marks)

$F =$ $A' + B' \cdot C'$

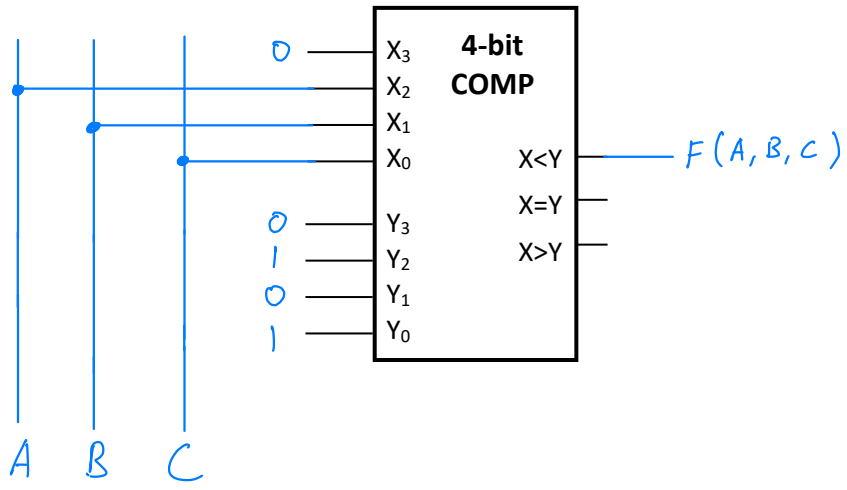
$G =$ $A' \cdot B + B \cdot C' + A \cdot B' \cdot C$

$H =$ C

(b) (2 marks)

"The circuit converts a 3-bit Sign and Magnitude to 3-bit excess 4 code."

(c) (2 marks)

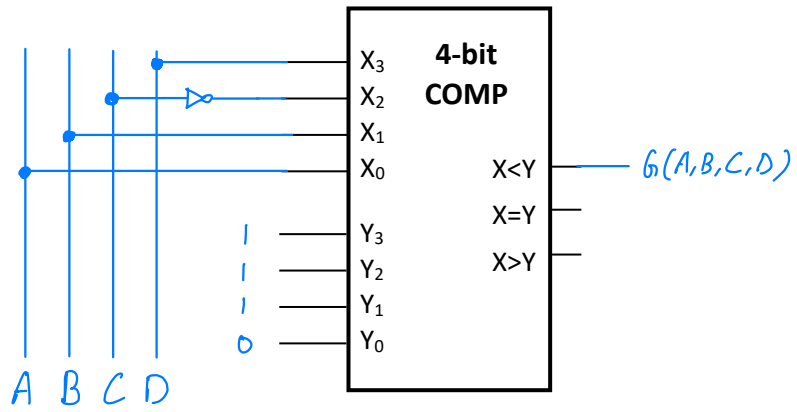


Q3 Total: _____ / 7

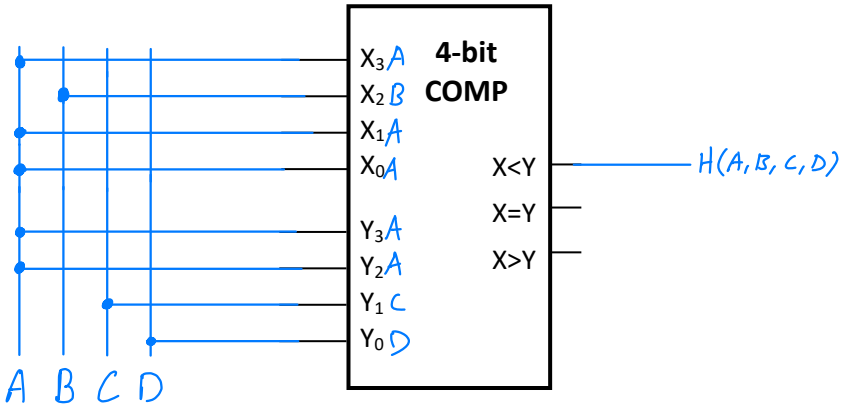
Question 4. (7 MARKS)

(a) (2 marks) $F(A,B,C,D) = B \cdot C' \cdot D' + A \cdot C' + A \cdot B \cdot D'$

(b) (2 marks)



(c) (3 marks)



Q4 Total: _____ / 7

Question 5. (5 MARKS)

$F_2 = A_7 + A_6 + A_5 + A_4$

$F_1 = A_7 + A_6 + (A_5' \cdot A_4' \cdot A_3) + (A_5' \cdot A_4' \cdot A_2)$

$F_0 = A_7 + (A_6' \cdot A_5) + (A_6' \cdot A_4' \cdot A_3) + (A_6' \cdot A_4' \cdot A_2' \cdot A_1)$

Q5 Total: _____ / 5

Question 6. (6 MARKS)

(a) (2 marks) State $(111)_2$

(b) (2 marks) State $(010)_2$

(c) (2 marks) $(010)_2$, $(000)_2$

Q6 Total: _____ / 6

Total Marks: _____ / 40 (To be filled by TA only)

=== END OF PAPER ===