CS2100 Assignment 3 Answer Book

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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)* = $\boldsymbol{\Sigma m(6, 15)}$

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

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

Q1 Total: _____ / 6

Question 2. (6 MARKS)

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

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

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

Q2 Total: _____ / 6

Question 3. (7 MARKS)

(a) (3 marks)

F = A’ + (B’· C’)

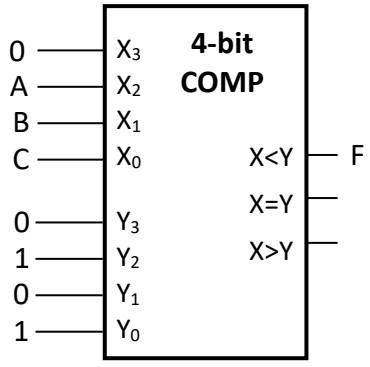
G = (A’· B) + (B· C’) + (A· B’· C)

H = C

(b) (2 marks)

“The circuit converts a 3-bit sign-and-magnitude number to 3-bit excess 4 code.”

(c) (2 marks)

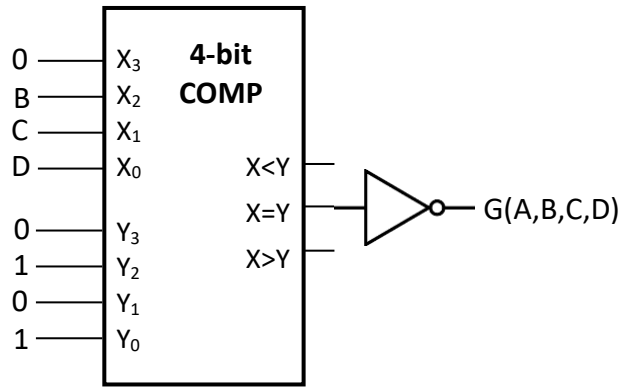


Q3 Total: _____ / 7

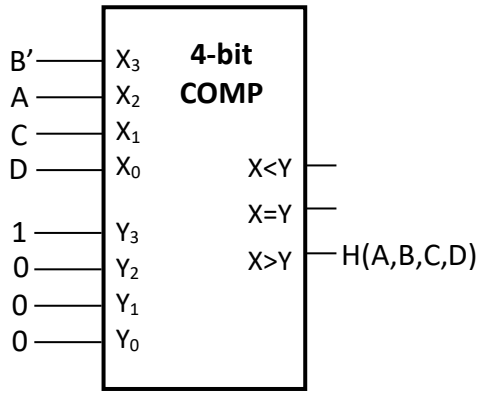
Question 4. (7 MARKS)

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

(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 7

(b) (2 marks) State 2

(c) (2 marks) States 0 and 2

Q6 Total: _____ / 6

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

=== END OF PAPER ===