

EE 2720, Spring 2011

Homework # 5

Due wednesday April 27 in class

Note: Please staple your homework

Problem 1: (a) Using a decoder with complemented outputs and a NAND gate implement the logic function

$$F = \sum_{A,B,C,D} (1, 3, 5, 7, 8, 10, 12, 13, 14, 15)$$

(b) Using a decoder with complemented outputs and an AND gate implement the logic function of part (a) above.

(c) Using a decoder with uncomplemented outputs and an OR gate implement the logic function of part (a) above.

(d) Using a decoder with uncomplemented outputs and a NOR gate implement the logic function of part (a) above.

Problem 2: Using a decoder with uncomplemented outputs and an OR gate implement the logic function

$$F = (A + B' + C) \cdot (B' + C + \overset{\uparrow}{D}) \cdot (A' + C + D)$$

← this is D'

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Problem 3: Using a decoder with complemented outputs and an AND gate implement the logic function of problem 2.

Problem 4: Using a decoder with complemented outputs and an AND gate implement the logic function

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

Problem 5: Using a decoder with uncomplemented outputs and an OR gate implement the logic function of problem 4.