04.12.2020

Ankara University

Computer Engineering Department

COM275/2075 Digital Logic Design Midterm

Exam Time: 120 minutes

QUESTIONS

1. (15 points) Convert decimal $(76.4193)_{10}$ to hexadecimal. In the fractional part, 5 digit progress is sufficient.

$$(76.4193)_{10} = (?)_{16}$$

2. (15 points) Simplify the following Boolean expression to a minimum number of literals.

$$(a'b'+c)'\,(ab + c') + a + b + c$$

3. (35 points) Simplify the Boolean function $F(a, b, c) = \prod (0, 2, 4, 6, 7)$ by using Karnaugh map in product-of-maxterms form. Then draw the circuit of the simplified function by using logic gates.

4. (35 points) Simplify the following Boolean function *F*, together with the don't-care conditions *d* by using Karnaugh map. Then draw the circuit of the simplified function by using logic gates.

$$F\,(a, b, c, d) = \sum (0, 4, 8, 11, 13)$$

$$d\,(a, b, c, d) = \sum (1, 9, 15)$$