EC2.101 – Digital Systems and Microcontrollers

Practice Sheet 2 (Lec9– Lec 12)

Q1. A 4-variable function $F(w,x,y,z)$ has minterms $m_3, m_4, m_5, m_7, m_9, m_{13}, m_{14}, m_{15}$ find the simplified boolen expression for the function.

Q2. Minimize the following expression using K-map.

$$Y = \sum m(0,1,5,9,13,14,15) + \sum d(3,4,7,10,11)$$

Q3. Solve the kmap for

1. $F(x,y,z) = \prod M(0,5)$
2. $F(x,y,z) = \sum m(1,2,3,4,6,7)$

Q4. Solve for 5 variables kmap

$$F(a,b,c,d,e) = ab'cd + a'b'cde + ab'c'de + a'bcde$$

Q5. Implement the following gates using a 2-to-1 multiplexer.

1. 2 input AND gate
2. 2 input XOR gate

Q6 Implement 4-to-1 mux using 2-to-1 multiplexers.