



Assignment 1 - Digital Electronics and Computer Organization Laboratory- ENCS2110

Q1) Implement the following Boolean expression using only NOR gates. (1.5 points)

a) $F = (A + B)'C + A'$

Q2) Implement the following Boolean expression using only NAND gates. (1.5 points)

a) $F = (AB)' + (BC)'$

Q3) Simplify the following Boolean expressions using a Karnaugh map. (2 points)

a) $F1 = A'BC + AB'C' + ABC$

b) $F2 = A'B + AC' + AB'C$

Q4) Design a 4-bit comparator and extend it to a 12-bit comparator by combining three 4-bit comparators and the necessary logic gates. (3 points)

Q5) Design a 4-bit subtractor and adder. (2 points)