Total (16 pts)

1.6. What is the biggest positive FP number that can be represented in 16-bit format using 1-bit sign, 4-bit biased exponent, and 11-bit fraction, where bias is 7? (4 pts)

1.8 Do the following assuming 16-bit FP numbers with 4-bit bias exponent, bias = 7, and 11-bit fraction: (4 pts)

a) **What real number does an FP number with sign= 0, bias exponent =1 and fraction = 0 represent?**

Total (16 pts)

2.4 Proof Demorgan's Theorem $\overline{x+y} = \bar{x}\,\bar{y}$ by creating truth tables for $f = \overline{x+y}$ and $g = \bar{x}\,\bar{y}$. Are the two truth tables identical? (4 pts)

2.5 Draw the circuit schematic for $f = x\bar{y} + yz$ and then convert the schematic to NAND gates using the steps illustrated in the textbook. (4 pts)