

UNIVERSITY OF THE WEST INDIES
CAVE HILL CAMPUS

Department of Computer Science, Mathematics & Physics

ELET1210 - Digital Electronics 1

Class Test 1

October 27, 2021

1. Subtract the following using 2's complement binary addition on 8 bits.

$$124 - 22 \quad [3]$$

2. Simplify the following function using the rules of Boolean algebra and SHOW EACH STEP.

$$F = AB + \bar{A}B + \bar{\bar{A}}\bar{\bar{B}}\bar{\bar{C}} \quad [3]$$

3. Simplify the following using a Karnaugh Map

$$F = \bar{A}\bar{C} + \bar{A}BC + \bar{\bar{A}}\bar{\bar{B}}\bar{\bar{C}} + B\bar{C} \quad [4]$$

4. Simplify the following function using De Morgan's rule

$$F = \overline{\bar{A}B + CD + \bar{B} + \bar{\bar{A}}\bar{\bar{B}}\bar{\bar{C}}} \quad [4]$$

5. Simplify the following to find the simplest SOP and POS forms

$$F = (\bar{A} + B + \bar{C} + D)(\bar{B} + C + \bar{D})(B + C + D)(A + B + D)(A + \bar{B} + \bar{C} + \bar{D})(\bar{A} + \bar{B} + \bar{D}) \quad [6]$$

6. Represent the real number below in the Single Precision Floating Point scheme

$$94.40625 \quad [4]$$