CSE 231 – Digital Logic Design
QUIZ 1
Department of Electrical and Computer Engineering
North South University

Term: Spring 2021 Student Name:
Date: 21/03/ 2021 Student ID:
Total Marks: 15
Total Time: 30 Minutes

1. (a) Simplify the following Boolean expression: using Boolean algebra.

(3+3=6) marks

$$AB + A(B + C) + B(B + C)$$

(b) Simplify the following Boolean expression: using Boolean algebra

$$\overline{\overline{\overline{A}.B + \overline{A}\,\overline{B}C + \overline{A}(\overline{B} + \overline{A}B)}}$$

2. (a) Carry out the following conversions between positional number systems. Show all your work –no marks will be awarded for answer only. **(2+2=4) marks**
   (i) $(0110110101.001)_2$ to $(X)_{16}$
   (ii) $(BABA.CACA)_{16}$ to $(X)_2$

(b) Represent the decimal numbers (751) and 343 to BCD, and then show the steps necessary to form their sum. **(2*1=2) marks**

(c) For the Boolean function **(3*1=3) marks**

$$F = X\overline{Y}Z + \overline{X}\,\overline{Y}Z + \overline{W}XY + W\overline{X}Y + WXY$$

(a) Obtain the truth table of F