CS2100 Computer Organisation
AY2021/22 Semester I
Assignment 1 [ANSWER SHEET]

FULL NAME:	
STUDENT ID: E.g., <AxxxxxxY>	
TUTORIAL GROUP:	

QUESTION 0. SUBMISSION INSTRUCTIONS (3 MARKS)

a. Ensure that you name your file <AxxxxxxxY>.pdf, where AxxxxxxxY is your matric number. (1 mark)	**Y / N**
b. Ensure that you submit your assignment as a single PDF file. (1 mark)	**Y / N**
c. Ensure that your assignment submission has your tutorial group number, student ID and name	**Y / N**

QUESTION 1. COMPLEMENT NUMBER SYSTEMS (10 MARKS)

Q1.a	
Q1.b	
Q1.c	
Q1.d	
Q1.e	

QUESTION 2. REAL NUMBERS (11 MARKS)

<table>
<tr><td>Q2.a</td><td>(i)</td></tr>
<tr><td></td><td>(ii)</td></tr>
<tr><td></td><td>(iii)</td></tr>
<tr><td>Q2.b</td><td>
<table>
<tr><th>m</th><th>Most positive integer</th><th>Most negative integer</th><th>Smallest positive value</th></tr>
<tr><td>4</td><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Q2.c</td><td>
<table>
<tr><th>Most positive value</th><th>Most negative value</th><th>Smallest positive value</th></tr>
<tr><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Q2.d</td><td></td></tr>
</table>

QUESTION 3. C and Assembly Programming (8 MARKS)

Q3.a	
Q3.b	
Q3.c	

QUESTION 4. INSTRUCTION ENCODING (8 MARKS)

<table>
<tr><td>Q4.a</td><td></td></tr>
<tr><td>Q4.b</td><td></td></tr>
<tr><td>Q4.c</td><td>(Provide encodings only for the four instructions in <u>bold and underline</u>.)

<table>
<tr><th>Label</th><th>Instruction</th><th>Hexadecimal Encoding</th></tr>
<tr><td></td><td><u>addi $4, $3, 40</u></td><td></td></tr>
<tr><td></td><td>addi $5, $3, 0</td><td rowspan="4"></td></tr>
<tr><td>loop:</td><td>lw $6, 0($5)</td></tr>
<tr><td></td><td>addi $6, $6, 1</td></tr>
<tr><td></td><td><u>sw $6, 0($5)</u></td><td></td></tr>
<tr><td></td><td>addi $5, $5, 4</td><td></td></tr>
<tr><td></td><td><u>slt $6, $5, $4</u></td><td></td></tr>
<tr><td></td><td><u>bne $6, $zero, loop</u></td><td></td></tr>
</table></td></tr>
</table>