Ponce Martin 10371381 Date 23/09/2014

Family name Given name Student number

**ENS1161 Computer Fundamentals**

**Test 8**

(a) Find the 8-bit 2’s complement form for the number -98.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 |

(b) (i) Add the 8-bit binary numbers1000 1100 and 1001 1001, and find the

values of the C, N and V flags.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **8-bit Output** | | | | | | | |
| 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |

|  |  |  |
| --- | --- | --- |
| **C** | **N** | **V** |
| 1 | 0 | 1 |

1. By interpreting the addition in terms of **unsigned** integers, convert the

answer to a decimal number

C = 1: output is 16-bit.

0000 0001 0010 0101

= 12516

= 29310

1. By interpreting the addition in terms of signed integers, convert the

answers to a decimal number.

N = 0, V = 1: output is negative 16-bit

1111 1111 0010 0101

0000 0000 1101 1010 1s complement

0000 0000 1101 1011 add 1

= DB16

= -21910

[ 2 + 4 + 2 + 2 = 10 marks ]