**CS2100 Assignment 1 Answer Book**

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| **Tutorial Group Number:** | 13 |

After completion, save this file as AxxxxxxxY.pdf, then zip together with your parity.c file into a single zip file AxxxxxxxY.zip, and submit this on Canvas.

If you do not fill your particulars above, or do not follow the submission instructions you will forfeit 3 marks.

**Question 1.** (13 MARKS)

1a. (1 mark)

Parity (in hexadecimal): 0x04

1b. Cut and paste your **hex2dec** code below (2 marks)

uint8\_t hex2dec(char \*byte) {

return \*byte;

}

1c. Correctness of code: \_\_\_\_\_\_\_\_\_\_/10 (Filled in by TA)

Q1 Total: \_\_\_\_\_\_\_\_\_ / 13

**Question 2.** (10 MARKS)

2ai) X in base 7 is 523 (1 mark)

2aii) Y in base 5 is 124 (1 mark)

2aiii) The mystery base Z is 9 (1 mark)

2bi) The smallest positive number that can be represented is 0b0000 0000 0000 0001 = 0.00390625 (1 mark)

2bii) The largest positive number that can be represented is 0b0111 1111 1111 1111 = 127.99609375 (1 mark)

2biii) The most negative number that can be represented is 0b1111 1111 1111 1111 = -127.99609375 (1 mark)

2biv) Absolute error in representing 17.143 is 0.002375 (1 mark)

2c) 17.143 in IEEE754 format is 0x418924dd (3 marks)

Q2 Total: \_\_\_\_\_\_\_\_\_ / 10

**Question 3.** (5 MARKS)

3a. (1 mark)

int t0 = 5;

int x = 0;

while (t0 >= x) {

ctr = ctr / 2;

x++;

}

3b. (1 mark)

int t0 = 5;

int x = t0 + 10;

do {

ctr = ctr / 2;

x += -1;

}

while (x >= t0);

3c. (3 marks)

int \*t1 = &B[ctr];

int \*t0 = &A[ctr];

while (t0 < &A[v]) {

int t2 = \*t0;

int t3 = \*t1;

if (t2 >= t3) {

\*t1 = t2;

\*t0 = t3;

}

t0++;

t1++;

}

Q3 Total: \_\_\_\_\_\_\_\_\_ / 5

**Question 4.** (9 MARKS)

4a. Number of times: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (2 marks)

4b. Number of times: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (2 marks)

4c. Number of instructions: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (2 marks)

4d. Number of unique bytes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (3 marks)

Q4 Total: \_\_\_\_\_\_\_\_\_ / 9

**Total Marks:** \_\_\_\_\_\_\_\_\_\_\_\_\_ / 37 (To be filled by TA only)