Introduction to 80x86 Assembly Language and Computer Architecture 3rd edition Detmer Test Bank

SKU: 9781284036121-TEST-BANK

Chapter 1 Sample Examination Questions

Students may use a calculator but no book or notes for these questions.

1. In a PC using an Intel 80x86 microprocessor, the number of

   (a) bits in a byte is _____

   (b) bits in a hex digit is _____

   (c) bits in a doubleword is _____

   (d) bits in a single precision floation point number is _____

   (e) bytes in a word is _____

   (f) bytes in a quadword is _____

   (g) hex digits in a byte is _____

   (h) hex digits in a doubleword is _____

   (i) hex digits in a single precision floation point number is _____

2. Suppose that a word contains FF C8.

   (a) Given that this word represents an unsigned decimal number, what is the decimal number?

   (b) Given that this word is the 2's complement representation for a signed decimal number, what is the decimal number?

   (c) Give the 2's complement of FF C8.

3. Suppose that a word contains EC F9.

   (a) Given that this word represents an unsigned decimal number, what is the decimal number?

   (b) Given that this word is the 2's complement representation for a signed decimal number, what is the decimal number?

   (c) Give the 2's complement of EC F9.

4. Suppose that a byte contains 20 (in hex).

Introduction to 80x86 Assembly Language and Computer Architecture 3rd edition Detmer Test Bank

(a) Given that this byte is the ASCII code for a character, what is the character?

(b) Given that this byte represents an unsigned decimal number, what is the decimal number?

(c) Given that this byte is the 2's complement representation for a signed decimal number, what is the decimal number?

5. Perform each of the following additions of word size numbers. Give the sum in hex as a word size number. State whether or not overflow occurs. State whether or not there is a carry. Check each answer by converting the problem to both decimal interpretations (unsigned and 2's complement); show that the unsigned interpretation is correct when there is no carry, and the signed interpretation is correct when there is no overflow.

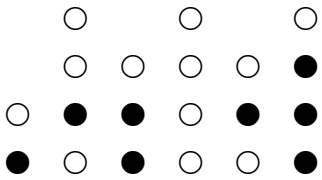
(a) 4E35 + 71CA

(b) FFFA + 03B1

(c) FFFA + FFFB

(d) 03B7 + 3FDC

6. Suppose you have a "binary clock," the display of which is an array of LEDs where the first two columns give the 10s and 1s digits of the hour, the next two columns give the minutes, and the last two give the seconds, each in binary where a lit LED means 1 and an unlit LED means 0. Identify the time shown on each clock display to the right.



7. Find the single precdision floating point representation of the decimal number -53.75. Give your answer as 8 hex digits.

8. Given that the ASCII code for the uppercase letter C is 43 in hex, what is the ASCiI code for a lowercase c?

9. Given that the ASCII code for the numeral 0 is 30 in hex, what is the ASCiI code for the numeral 6?

10. Give an example of an ASCII control character.

11. Starting with the decimal number -2

(a) Give the byte-length 2’s complement representation of the number in hex.

Introduction to 80x86 Assembly Language and Computer Architecture 3rd edition Detmer Test Bank

(b) Give the word-length 2’s complement representation of the number in binary.

(c) Give the doubleword-length 2’s complement representation of the number in hex.

(d) Give the quadword-length 2’s complement representation of the number in hex.

Introduction to 80x86 Assembly Language and Computer Architecture 3rd edition Detmer Test Bank

Chapter 1 Sample Examination Questions

Students may use a calculator but no book or notes for these questions.

1. In a PC using an Intel 80x86 microprocessor, the number of

   (a) bits in a byte is __8__

   (b) bits in a hex digit is __4__

   (c) bits in a doubleword is __32__

   (d) bits in a single precision floation point number is __32__

   (e) bytes in a word is __2__

   (f) bytes in a quadword is __8__

   (g) hex digits in a byte is __2__

   (h) hex digits in a doubleword is __8__

   (i) hex digits in a single precision floation point number is __4__

2. Suppose that a word contains FF C8.

   (a) Given that this word represents an unsigned decimal number, what is the decimal number? 65480

   (b) Given that this word is the 2's complement representation for a signed decimal number, what is the decimal number? -56

   (c) Give the 2's complement of FF C8. 0038

3. Suppose that a word contains EC F9.

   (a) Given that this word represents an unsigned decimal number, what is the decimal number? 60665

   (b) Given that this word is the 2's complement representation for a signed decimal number, what is the decimal number? -4871

   (c) Give the 2's complement of EC F9. 1307

Introduction to 80x86 Assembly Language and Computer Architecture 3rd edition Detmer Test Bank

4. Suppose that a byte contains 20 (in hex).

   (a) Given that this byte is the ASCII code for a character, what is the character? space

   (b) Given that this byte represents an unsigned decimal number, what is the decimal number? 32

   (c) Given that this byte is the 2's complement representation for a signed decimal number, what is the decimal number? 32

5. Perform each of the following additions of word size numbers. Give the sum in hex as a word size number. State whether or not overflow occurs. State whether or not there is a carry. Check each answer by converting the problem to both decimal interpretations (unsigned and 2's complement); show that the unsigned interpretation is correct when there is no carry, and the signed interpretation is correct when there is no overflow.

   (a) 4E35 + 71CA

   sum BFFF, no carry, is overflow

unsigned	signed
20021 + 29130 = 49151	20021 + 29130 = 49151 ≠ -16385

   (b) FFFA + 03B1

   sum 03AB, is carry, no overflow

unsigned	signed
65530 + 945 = 66475 ≠ 939	-6 + 945 = 939

   (c) FFFA + FFFB

   sum 03AB, is carry, no overflow

unsigned	signed
65530 + 65531 = 131061 ≠ -11	-6 + (-5) = -11

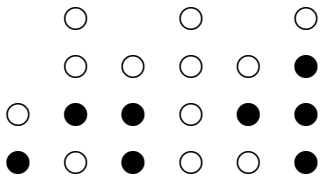
   (d) 03B7 + 3FDC

   sum 4393, no carry, no overflow

unsigned	signed
951 + 16348 = 17299	951 + 16348 = 17299

Introduction to 80x86 Assembly Language and Computer Architecture 3rd edition Detmer Test Bank

6. Suppose you have a "binary clock," the display of which is an array of LEDs where the first two columns give the 10s and 1s digits of the hour, the next two columns give the minutes, and the last two give the seconds, each in binary where a lit LED means 1 and an unlit LED means 0. Identify the time shown on each clock display to the right.



12:30:27

7. Find the single precdision floating point representation of the decimal number -53.75. Give your answer as 8 hex digits. C2570000

8. Given that the ASCII code for the uppercase letter C is 43 in hex, what is the ASCiI code for a lowercase c? 63

9. Given that the ASCII code for the numeral 0 is 30 in hex, what is the ASCiI code for the numeral 6? 36

10. Give an example of an ASCII control character. 09 (HT, tab) [00-1F, 7F]

11. Starting with the decimal number -2

    (a) Give the byte-length 2's complement representation of the number in hex. FE

    (b) Give the word-length 2's complement representation of the number in binary. 1111 1111 1111 1110

    (c) Give the doubleword-length 2's complement representation of the number in hex. FF FF FF FE

    (d) Give the quadword-length 2's complement representation of the number in hex. FF FF FF FF FF FF FF FE

Introduction to 80x86 Assembly Language and Computer Architecture 3rd edition Detmer Test Bank