3.1.11

1. Using the value –35, write it as an integer literal in decimal, hexadecimal, octal, and binary

formats that are consistent with MASM syntax.

**Answer:** -35d, DDh, 335o, 11011101b

2. (Yes/No): Is A5h a valid hexadecimal literal?

**Answer:** No, a leading zero is required.

3. (Yes/No): Does the multiplication operator (\*) have a higher precedence than the division

operator (/) in integer expressions?

**Answer:** No, they have the same precedence

4. Create a single integer expression that uses all the operators from Section 3.1.2. Calculate

the value of the expression.

**Answer:** (5 + 1)/(-2 + 3)\*2 mod 5 = 2

3.2.4

4. In the AddTwo program, which register holds the sum?

**Answer:** EAX

5. In the AddTwo program, which statement halts the program?

**Answer:**  INVOKE ExitProcess, 0

3.3.3

1. What types of files are produced by the assembler?

**Answer:** Object (.OBJ) and listing (.LST) files

2. (True/False): The linker extracts assembled procedures from the link library and inserts them in the executable program.

**Answer**: True

3. (True/False): When a program’s source code is modified, it must be assembled and linked again before it can be executed with the changes.

**Answer:** False

4. Which operating system component reads and executes programs?

**Answer:** Loader

3.4.13

1. Create an uninitialized data declaration for a 16-bit signed integer.

**Answer:** num SWORD

2. Create an uninitialized data declaration for an 8-bit unsigned integer.

**Answer:** num BYTE

3. Create an uninitialized data declaration for an 8-bit signed integer.

**Answer:** num SBYTE

4. Create an uninitialized data declaration for a 64-bit integer.

**Answer:** num QWORD

5. Which data type can hold a 32-bit signed integer?

**Answer:** num SDWORD

3.5.5

3. Write a statement that causes the assembler to calculate the number of bytes in the following array, and assign the value to a symbolic constant named ArraySize: myArray WORD 20 DUP(?)

**Answer:** ArraySize ($ - myArray)

3.9.1

4. Explain why the term assembler language is not quite correct.

**Answer:** The program that turns assembly code into machine code is called Assembler.

5. Explain the difference between big endian and little endian. Also, look up the origins of this term on the Web.

**Answer:** The phrases that differentiate between the order of bytes stored in memory are called big-endian and little-endian. The most significant value is stored first with big-endian, while the least significant value is stored first with little-endian.

6. Why might you use a symbolic constant rather than an integer literal in your code?

**Answer:** If a constant changes a lot in the code, the it would be easier to change it in the beginning of your code.

25. Which data directive creates a 32-bit signed integer variable?

**Answer:**

3.9.2

4. Find out if you can declare a variable of type DWORD and assign it a negative value. What does this tell you about the assembler’s type checking?

**Answer:** You can assign it a negative value. This means that it recognizes the data directive, and whether it is a negative or not.

7. Declare an array of 120 uninitialized unsigned doubleword values.

**Answer:** testArray DWORD 120 DUP(?)

13. Declare a string variable containing the word “TEST” repeating 500 times.

**Answer:** testString BYTE 500 DUP(“TEST”)

3.10

2.

ExitProcess proto

.data

Sunday = 0

Monday = 1

Tuesday = 2

Wednesday = 3

Thursday = 4

Friday = 5

Saturday = 6

Days DB Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday

.code

main proc

mov ax, @data

mov ds, ax

;test ; print the first value

mov ah, 02h

mov dl, Days

Add dl, 30h

Int 21h

mov ah, 4ch

Int 21h

end main

; AddTwoSum\_64.asm - Chapter 3 example.

ExitProcess proto

.data

sum qword 0

.code

main proc

mov eax,5

mov ebx,6

;

mov ecx,eax

mov eax,ebx

mov ebx,ecx

;

call ExitProcess

main endp

end