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CMIS 310
HOMEWORK #4 – Week #4

This homework is worth 10% of your course grade.

Read each problem carefully. Failure to follow the instructions for a problem will result in a zero score for that problem.

Submit the completed Homework via Assignment in LEO.

1. Do Exercise 2 in Chapter 5 (A Closer Look at Instruction Set Architectures) of Null and Lobur

   A. $456789A1_{16}$ stored in big endian and little endian starting at address 10_{16}

Address	10_{16}	11_{16}	12_{16}	13_{16}
Big Endian	**45**	**67**	**89**	**A1**
Little Endian	**A1**	**89**	**67**	**45**

   B. $0000058A_{16}$ stored in big endian and little endian starting at address 10_{16}

Address	10_{16}	11_{16}	12_{16}	13_{16}
Big Endian	**00**	**00**	**05**	**8A**
Little Endian	**8A**	**05**	**00**	**00**

   C. 14148888_{16} stored in big endian and little endian starting at address 10_{16}

Address	10_{16}	11_{16}	12_{16}	13_{16}
Big Endian	**14**	**14**	**88**	**88**
Little Endian	**88**	**88**	**14**	**14**

2. Do Exercise 8 in Chapter 5 (A Closer Look at Instruction Set Architectures) of Null and Lobur
   A. X x Y + W x Z + V x U postfix is **X Y x W Z x V U x + +**
   B. W x X + W x (U x V + Z) postfix is **W X x W U V x Z + x +**

C. (W x (X + Y x (U x V)))/(U x (X + Y)) postfix is **W X Y U V xx + x U X Y + x /**

3. Do Exercise 9 in Chapter 5 (A Closer Look at Instruction Set Architectures)of Null and Lobur
   A. W X Y Z – + x infix is **((Y-Z)+X)*W**
   B. U V W X Y Z + x + x + infix is **(((((Y+Z)xX)+W)xV)+U)**
   C. X Y Z + V W – x Z + + infix is **(((Y+Z) x (V-W) + Z) +X)**

4. Do Exercise 14 in Chapter 5 (A Closer Look at Instruction Set Architectures) of Null and Lobur

Mode	Value loaded in AC
Immediate	**500**
Direct	**100**
Indirect	**600**
Indexed	**800**

5. Do Exercise 19 in Chapter 5 (A Closer Look at Instruction Set Architectures)of Null and Lobur

A. How large must the mode field be? 2^3 = 8 > 7. **3 bits are needed for the modes**
B. How large must the register field be? 2^6 = 64>60. **6 bits are needed for the registers**
C. How large must the address field be? 256K = 256 * K = 2^8 +2^10 = 2^18. **18 Bits are needed for the address**
D. How large is the opcode field? 32 - 3 (modes) - 6 (registers)-18 (address) = 5. **5 Bits are needed for the opcode**