Assignment 8

1. List the three groups of a machine's instructions and give a specific example of instruction of each group.(3 points)

2. Using the machine language of Appendix C in the slide, write programs to answer the following questions. Assume all general-purpose registers R0-RF are initialized to 00. (5 points)

   (1) Complete the following program that copies the most significant 4 bits from memory cell F0 into the least significant 4 bits of memory cell F1, while placing 0s in the most significant 4 bits of the cell at location F1.(3 points)

   11_ _

   A1_ _

   22_ _

   80_ _

   30_ _

   (2) The following program is for calculating the result of 1+2+3+4+5+6+7+8+9+10. Please fill in the blank. Note that the program is started from memory address A0.(2 points)

   A0 2 0 _ _

A2 2 1 0 1

A4 2 2 0 1

A6 5 3 3 2

A8 5 _ 2 1

AA B 2 A E

AC B 0 _ _

AE _ _ _ _

3. Answer the following questions.(2 points)

   (1) What's the result if we arithmetically shift one bit left for 11010101.

   (2) In the architecture of appendix C machine, what number will the CPU add to the program counter so that this register contains the address of the next instruction?