Zoo400 Quiz 2: Mar 2, 1999

NAME:

EMU assembler/machine correspondence:
ADD=0, DEC=1, INC=2, SKP=3, JMP=4, CLA=5, LDA=6, HLT=7

Other abbreviations:
ACC=Accumulator, PC=program counter, IR=instruction register

Octal to binary equivalents:
0=000, 1=001, 2=010, 3=011, 4=100, 5=101, 6=110, 7=111

There is only 1 best answer per question. (1 pt each)

1. Which of the following would **NOT** necessarily work as a NOP if placed in address 0. (NB a NOP is a no-operation, a step that will not effect the running of the program as it goes over that step).

   (A) 3000
   (B) 0000
   (C) 4001
   (D) 3001

2. Which of the following commands alters the accumulator:

   (A) 6000
   (B) 7777
   (C) 2000
   (D) 4000
   (E) 5777

3. With 3 as the contents of the accumulator, the command 0001 will have the same effect as CLA if the contents of address 1 is:

   (A) 6775
   (B) 7775
   (C) 0000
   (D) 7777
   (E) 0003

4. The command 'DEC 2' in 4 digit octal is decimal (hint consider each place as a power of 8)

   (A) 1002
   (B) 2001
   (C) 514
   (D) 258
   (E) 259

The following questions pertain to this program (in octal):
0:5000
1:0012
2:1011
3:3011
4:4001
5:6013
6:7000

5. The command in address 4 is a:

   (A) CLA
   (B) JMP
   (C) SKP
   (D) HLT
   (E) ADD

6. The binary **ADDRESS** referenced by the command in address 5 is:

   (A) 110
   (B) 011
   (C) 1011
   (D) 110000001011
   (E) 1101

7. The program performs a

   (A) subtraction
   (B) addition
   (C) division
   (D) imperfect self-copy
   (E) multiplication

The following questions pertain to this program (in octal):

0: 5000
1: 0005
2: 6017
3: 1001
4: 1002
5: 4000

8. In general, a word in memory that is altered by a program is considered data while a word in memory that is executed (pointed to by PC, loaded into IR, processed by CPU) is considered part of the program. Which address holds a word that serves as both data and program.

   (A) 0
   (B) 1
   (C) 3
   (D) 4
   (E) 5

9. The program performs a

   (A) subtraction
   (B) addition
   (C) division
   (D) imperfect self-copy
   (E) multiplication

10. The program will halt at address (ie the final address in the PC will be):

    (A) 0
    (B) 1
    (C) 3
    (D) 4
    (E) 5