1. Assume that the value $69H$ is in location $X$ of an 8086 system, and the value $A1H$ is in location $Y$. The following fragment is executed:

```
MOV AL, X
SUB AL, Y
```

The value in AL after execution is:

a. C8H  
   b. C7  
   c. 38  
   d.37  
   e. N.A.

2. The fraction 4.125 is expressed as an unsigned 8-bit hexadecimal number as:

a. 1EH  
   b. DEH  
   c.42H  
   d.21H  
   e. N.A.

3. Which of the following code sequence emulates, or imitates, the behavior of the 8086 intrasegment CALL and RET instructions on the 8086? (... indicates missing lines.)

<table>
<thead>
<tr>
<th>a.</th>
<th>b.</th>
<th>c.</th>
<th>d.</th>
<th>e. N.A.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUSH CS</td>
<td>PUSH IP</td>
<td>PUSH CS</td>
<td>PUSH IP</td>
<td>PUSH CS</td>
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<tr>
<td>PUSH IP</td>
<td>... POP IP</td>
<td>PUSH IP</td>
<td>... POP CS</td>
<td>PUSH F</td>
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<td>... POP IP</td>
<td>... POP</td>
<td>... POP CS</td>
<td>POP</td>
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<tr>
<td>PUSH IP</td>
<td>POP IP</td>
<td>POP CS</td>
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</table>

4. The decimal number -9 is represented in the IEEE 32-bit floating point format as the following hexadecimal number:

a. C1300000  
   b. 41200000  
   c. C1100000  
   d. B1200000  
   e. N.A.
Answer the following five questions on the basis of the following excerpt of an 8086 program. (... indicates missing lines. Assume that values in the DATA segment were not changed prior to entry into the code shown.)

```
DATA SEGMENT PUBLIC
DB 3 DUP ?
COUNT DW 2
DATA ENDS

CODE SEGMENT PUBLIC
...
0007 INIT: MOV CX, COUNT
000B XOR AX, AX
000D JMP SEQ
0010 BAK: MOV AX, CX
0012 JMP FOR
0015 SEQ: DEC DX
0016 DEC CX
0017 BNZ BAK
...
002D FOR: MOV DX, AX
002F JMP INIT
```

5. The content of the byte at offset 000E in the code segment can be expressed in hexadecimal as:
   a. 05  b. 06  c. 07  d. 15  e. FB

6. The content of the byte at offset 0018H in the code segment can be expressed in hexadecimal as:
   a. F9  b. F0  c. F7  d. 09  e. 10

7. The number of bytes occupied by the instruction at offset 0007 in the code segment is:
   a. 1  b. 2  c. 3  d. 4  e. 5

8. A plausible value for COUNT in the assembler’s symbol table is
   a. 1  b. 2  c. 3  d. 4  e. Cannot determine from the information given.

9. The offset of COUNT in the DATA segment at load time is:
   a. 1  b. 2  c. 3  d. 4  e. Cannot determine from the information given.
Answer the next three questions on the basis of the following fragment of an Intel 8086 program:

```
DATA SEGMENT
A DW ?
B DB FFH
C DW 1234H
D DB EEH
DATA ENDS
CODE SEGMENT PUBLIC
...
MOV AX, OFFSET C
MOV DL, B
MOV DH, D
MOV A, DX
CODE ENDS
```

Assume that no instructions affecting the contents of memory locations A, B, or C have been executed prior to execution of the instructions given.

10. The contents of AX after execution of the given instruction sequence can be represented in hexadecimal as:
   a. 0002H   b. 0003H   c. FFFFH   d. 1234H   e. 0004H

11. The content of DL after execution of the given instruction sequence can be represented in hexadecimal as
    a. 00   b. 01   c. FE   d. FF   e. N. A.

12. The content of location A after execution of the given instruction sequence can be represented in hexadecimal as
    a. FFEE   b. 00FF   c. FF00   d. EEFF   e. N. A.