



**Answer the following questions.**

1. Explain the role of Assembler in context of HLL programs.

**(2 Points)**

**FREE RESPONSE QUESTION**

2. Given the code snippet below, fill in the register value/status of FLAGS where indicated: **(3 Points)**

```
1. 1000BABAh    MOV AL, 255
2. 1000BABBh    MOV BL, 10
3. 1000BABCh    MOV CL, 20
4. 1000BBDh     ADD AL, 1    ;EIP: 1000BABEh
5. 1000BABEh    SUB BL,CL    ;CF: 1 OF: 0 SF: 1
6. 1000BAFBh    SUB AL,1     ;CF: 1 OF: 0 ZF: 0 SF: 1
7. 1000BAC0h    INC BL
8. 1000BAC1h    INC CL
9. 1000BAC2h    SUB BL,CL
```

3. Executing the following code snippet, what value will be stored in **EAX**?

**(2 Points)**

```
.data
    val32 LABEL DWORD
    var1  BYTE 12h,13h
    var2  WORD 1100h, 2 DUP ('AB')
    var3  DWORD $
.code
    MOV   EAX, val32
```

**A. 12131100h**

**B. 11001213h**

**C. 00111312h**

**D. 11001312h**

4. Assuming that data segment in Question#3, above, starts at **1000FECEh**. Draw out byte by byte memory look up with addresses for var2 and var3. **(4 Points)**

```
.data
    val32 LABEL DWORD
    var1  BYTE 12h,13h
    var2  WORD 1100h, 2 DUP ('AB')
    var3  DWORD $
```

**Solution:**

<b>1000FED0</b>	00h	<b>1000FEDA</b>	DAh
<b>1000FED1</b>	11h	<b>1000FEDB</b>	FEh
<b>1000FED2</b>	41h	<b>1000FEDC</b>	00
<b>1000FED3</b>	00	<b>1000FEDD</b>	10
<b>1000FED4</b>	42h		
<b>1000FED5</b>	00h		
<b>1000FED6</b>	41h		
<b>1000FED7</b>	00		
<b>1000FED8</b>	42h		
<b>1000FED9</b>	00		

*Note: It is also considerable if a student has reserved a single byte for each of 'A' and 'B'*

5. With the help of LOOP replace each of the following NEGATIVE elements in **dArray** with its mathematical positive without using MUL, write only the code part. **(5 Points)**

dArray     DWORD   -1,2,-7,6,-15,12,-25,20,-37,30

**Solution:**

.code

```
MOV ECX, 5
MOV ESI, OFFSET dArray
L1: DWORD PTR NEG [ESI]
ADD ESI,8
LOOP L1
```