

1. Write assembly code for the following C++ code snippet (ax, bx are none negative integers):

```
if (ax >= bx)
    ax -=bx;
else
```

```
    bx -=ax;
```

2. Write assembly code for the following C++ code snippet:

```
int n = 20;
```

```
do {
    n--;
} while (n > 0);
```

3. Write assembly code for the following C++ code snippet:

```
x = 20;
```

```
if (m == n)
    y = x + 100;
else
    y = 2*x;
```

4. Write a code block to copy bytes from data1 to data2 memory buffer in 2 cases:

- Use non-string operation
- Use string operation

5. Given a memory area stored at 0xbb84ff0:

```
0x34  0xfe  0xfd  0xab  0x89  0x12  0xff  0xde  0x89  0x13  0x17  0x8d
```

6. What are the value of ax,rdx after the following instructions are executed:

```
mov    esi, 0xbb84ff0
mov    eax, dword[esi+8]
mov    rdx, qword[esi+4]
```

7. Given the stack memory area:

Low memory (0xb884fff0)

```
0xfe  0xfd  0xab  0x89  0x12  0xff  0xde  0x89  0x17  0xcd  0xe7  0x8a  0x77
0xaa  0xfe  0xdd  0xcd  0xff  0x12  0x45  0x9f  0xff  0x6a  0xc4  0x00  0xf6
```

Stack pointer = 0xb884fff0

a. What is the value of register in pop instructions for various 16, 32, 64 bits system

```
pop    rax (64-bit system)
```

```
pop    edi (32-bit system)
```

b. Given ebp = 0xb884fffd

What are the value of esi, edi, eax, ecx

```
mov    esi, [ebp+8]
mov    edi, [ebp+0xb]
mov    eax, [ebp-4]
mov    ecx, [ebp-0xa]
```

8. Calculate the decimal equivalent of 8-bit floating-point binary format numbers (1 sign bit + 3 exponent bits + 4 mantissa bits): E7, 68, D3, 57

9. Calculate the decimal equivalent of 32-bit floating-point binary format numbers: C4361000, 44363800, C4363C00, 3E580000

10. In an even-parity coding system, the transmit data unit is 8 bits which comprises 1 parity bit (msb) and 7 data bits. Assuming that the byte to be parity-encoded is in the AL register and the sum of bit 1 is an odd

Assembly language review

number. The parity bit now needs to be cleared with a mask byte without altering the remaining 7 bits.

Write the correct value of the mask byte?

12. What are value of AH, AL at watch point:

```
MOV AX, 0x4FCA
```

```
ADD AX, 0xDDA9
```

watch point #1:

```
ADD AH, 0xF3
```

watch point #2:

13. What are the values of AL and CF at watch point:

```
MOV BL,0x8C
```

```
MOV AL,0x7E
```

```
ADD AL,BL
```

Watch point :

14. The following sequence of instructions are executed. What is the correct value of flag bits CF, OF, SF, ZF at watch point?

```
MOV AL,-5
```

```
ADD AL,132
```

```
ADD AL,1
```

watch point:

15. The following sequence of instructions are executed. What is the correct value of AX, DX at watch point?

```
MOV DL,FF
```

```
MOV AL,42
```

```
IMUL DL
```

watch point:

16. The following sequence of instructions are executed. What is the correct value of AX and DX (in hex) at watch point?

```
MOV AL,FC00h
```

```
CWD
```

```
MOV CL,80h
```

```
IDIV CX
```

watch point:

17. Write assembly to compute $63250/258+256$

18. Write assembly to compute $-6247/300$

19. Write assembly code to compute $163250 \% 32767 + 257$