

**Course Title: Microprocessor and Assembly Language**

**Course Code: CSC321**

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**Semester: 6th**

**Total Marks 50**

**Assignment 2**

1. If AX=8FFF and BX=0FFF and “CMP ax, bx” is executed, which of the following jumps will be taken? Each part is independent of others. Also give the value of Z, S, and C flags. **(Marks 1.5\*4 = 6)**
2. JG greater
3. JL smaller
4. JA above
5. JB below
6. What is the difference between signed jumps and unsigned jumps? In which condition, which jump you prefer to use and why? **(Marks=2.5)**
7. Given below the following list of potential mathematical expressions. Write down the assembly code regarding each expression without using Emulator. Assume **X and Y** as data byte (db) type variable**. (Marks 2\*5=10)**
8. y = -3 \* x
9. y = 8 \* x - 3
10. y = (x \* 4) + (x - 8)
11. y = -1
12. y = (4 \* x - 1) / 8
13. Give the new values of AX and DX for each of the following instructions or tell if overflow occurs **(Marks 2\*3=6)**
14. DIV BX, if DX contains OOOOh, AX contains 0007h, and BX contains 0002h
15. DIV BX, if DX contains OOOOh, AX contains FFFEh, and BX contains OO1Oh
16. DIV BX, if DX contains FFFFh; AX contains FFFCh, and BX'contains 0003h .
17. Explain the following instructions of 8086 microprocessor. **(Marks 1\*4=4)**
18. LEX AX, ARRAY
19. Jmp label\_1
20. LOOP
21. CWD
22. Write an assembly code to convert the number 12438765h to 87654321h. **(Marks 2.5)**
23. Give the flags which are affected after performing the following operations: **(Marks 1\*3= 3)**
24. Shift left
25. Shift Arithmetic right
26. Shift logical right
27. Do the contents of flag register will change after any Rotate operation? **(Marks 2)**
28. Divide AX = 8003h by CX = 100h, write the code of given instruction? **(Marks 2.5)**
29. Suppose the stack segment is declared as follows: STACK lOOh. **(Marks 1\*4=4)**
30. What is the hex contents of SP when the program begins?
31. What is the hex content of SP if pop instruction performs in the starting?
32. What is the maximum hex number of words that the stack may contain?
33. What is the hex contents of SP, after insertion of 5 variables in the stack?
34. Write some code to **(Marks 2.5\*3=7.5)**
35. Place the top of the stack into AX, without changing the stack contents.
36. Place the word that is below the stack top into CX. Without changing the stack contents. You may use AX.
37. Exchanges the top two words on the stack. You may use AX and BX.