Computer Organization and Assembly Language

Class Test: 2 **Instructor:** Abdul Khaliq
Total Marks: 40 **Time:** 45 minutes

Question 1: **[10]**

Consider the Data area of a Program given below (where the address of first Variable i.e V1V is 0010) How this data will be stored in the memory.
(fill the given area with suitable addresses and contents in hexadecimal form)

V1V BYTE 0ABh, 0CDh, 0EFh, 40h, 50h, 60h
V2V SBYTE -32
V3V BYTE 123D,1011B
V4V WORD 1234h, 0ABCDh
V5V DWORD 45768923h, 1234ABCDh
V6V WORD 10 Dup(?)
V7V BYTE "AAAAA"
V8V WORD V2V

(Note : ASCII code of character **A** is 41h)

0010	0011	0012	0013	0014	0015	0016	0017	0018	0019	001A	001B	001C	001D	001E	001F
AB	CD	EF	40	50	60	E0	7B	0B	34	12	CD	AB	23	89	76
0020	0021	0022	0023	0024	0025	0026	0027	0028	0029	002A	002B	002C	002D	002E	002F
45	CD	AB	34	12	00	00	00	00	00	00	00	00	00	00	00
0030	0031	0032	0033	0034	0035	0036	0037	0038	0039	003A	003B	003C	003D	003E	003F
00	00	00	00	00	00	00	00	00	41	41	41	41	41	16	00
0040	0041	…	…	…	…	…	…	…	…	…	…	…	…	…	004F

Question 2: **[10]**

Consider the same Data area of the Program (discussed earlier), Give the Values of the mentioned operand, after the execution of the given instructions?

	INSTRUCTION	OUTPUT
1	MOV CL,0AH	CL = 0A
2	MOV AL,[0017]	AL = 7B
3	MOV BH , BYTE PTR V4V	BH = 34
4	MOV CX,V8V	CX = 0016
5	MOV AX,V4V +2	AX = ABCD
6	MOV DX,WORD PTR V5V+2	DX = 4576
7	MOV AH, Type V4V	AH = 02
8	MOV BL, LENGTH V6V	BL = A…or….10
9	MOV DL,SIZE V6V	DL = 20…
10	MOV BX,OFFSET V7V	BX = 0039

Question 3: **[5]**

As each of the instruction in the following program is executed, fill in the hexadecimal value of the operand listed on the right hand side:

```
.data
Var1 word  20h, 10h
Var2 word  30h, 40h

.code
:
        Mov ax,var1

        Xchg var2,ax        ; AX=? → 0030

        Dec ax

        Sub var2,2          ;VAR2=? → 001E

        Mov bx,var2

        Add ah,bl           ;AX=? → 1E2F
:
:
```

Question 4: **[13+2]**

Find out the Line Number where an incorrect instruction reside, also correct that instruction? Is there any output of the following program after correction? .

```
1)  .MODEL MEDIUM
2)  .STACK 10H
3)  COUNT EQU 5H
4)  .data
5)      ?WHAT  Byte ?
6)      Varb_1   byte AH
7)      VARW  WORD  1B4D
8)      VARW1 WORD -225D
9)  .CODE
10) P1 PROC
11)     Mov bx, @data
12)     Mov bx, ds
13)         MOV ES,1234h
14)         ADD VARW,02H
15)         MOV 0AH,AH
16)         XCHG AX,COUNT
17)         SUB 0ABH,DL
18)         DEC AL,1
19)         COUNT EQU 9
20)     Mov ax,4c00h
21)     Int 33
22)         Mov ah,02h
23)         Mov dl,'a'
24)         Int 21h
25) ENDP P1
26) P1 END
27) COMMENT@
This program uses different Arithmetic and Data
Transfer Instructions
@
```

Solution:

Line No (Having Errors) : 6,7,8,12,13,15,16,17,18,19,25,26

This program will not display anything (not display character 'a')

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