Computer Organization and Assembly Language

Class Test: 3 BSSEF12

Total Marks: 15 **Time:** 15minutes

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Question 1:

(a) How many MUX will be used to design a Shifter unit to shift data of a six bit register to left and right side, also what will be the size of each MUX? **[2]**

6 MUX, each of size 2 x 1

(b) Consider the designing of a common Bus using Tri stat Buffer Unit for the following environment: **[3]**

Number of Registers = 11
Size of each Register = 5 bits

Give the answer for following questions:-

(i) How many Tri-stat Buffer Units will be used? **(FIVE)**

(ii) How many Tri-stat Buffers will be containing by one TBU? **(16 OR 11)**

(iii) What will be the size of Decoder used by this TBU? **(4 x 16)**

Question 3: **[10]**

Assume SP=0100h before the start of very first instruction "CALL 0007" in the following program. Answer the questions given at the end:

```
177F:0000   E80400     CALL  0007
177F:0003   B44C       MOV   AH,4Ch
177F:0005   CD21       INT   21
177F:0007   50         PUSH  AX
177F:0008   53         PUSH  BX
177F:0009   33D2       XOR   DX,DX
177F:000B   F7C30100   TEST  BX,0001
177F:000F   7402       JZ    0013
177F:0011   03D0       ADD   DX,AX
177F:0013   DIE0       SHL   AX,1
177F:0015   DIEB       SHR   BX,1
177F:0017   75F2       JNZ   000B
177F:0019   5B         POP   BX
177F:001A   58         POP   AX
177F:001B   C3         RET
```

1) What is the value of **IP** after the execution of instruction CALL 0007?
   0007

2) What would be in **SP** after the execution of "CALL 0107" instruction?
   00FE

3) What would be on **top of stack** after the execution of "CALL 0107" instruction?
   0003

4) What is in **SP** after the execution of PUSH AX instruction?
   OOFC

5) What is in **SP** after the execution of POP BX instruction?
   00FC

6) What is in **SP** after the execution of RET instruction?
   0100

7) What is in **IP** after the execution of RET instruction?
   0003

8) Consider the value of AX=000A and BX=000B in the start of the program, What will be the value of DX after the complete execution of the program?

   6E
