

(परीक्षार्थी द्वारा भरा जाए)  
(To be filled by the Candidate)  
**Semester Practical Examination (2021-22), May 2022**

परीक्षा का नाम (Name of Examination) **B.Tech CSE VI Semester**

अनुक्रमांक अंकों में(In figures) .....**1913197**.....

अनुक्रमांक(शब्दों में)(Roll No. in Words) .....**Nineteen lakh thirteen  
thousand one hundred seven**.....

नामांकन संख्या (Enrollment No.) .....**2019/915**.....

ई-मेलआई.डी. (E-mail ID.) .....**btbtc19123\_shivani@banasthali.in**.....

विषय(Subject) .....**Computer Science**.....

प्रश्न पत्र कोड सहित(Paper with Code) .....**ELE 306L Microprocessors and  
Microcontrollers Lab**.....

परीक्षा दिवस और दिनांक (Day and Date of Examination) ...**Wednesday,  
04-05-2022..**

Total Number of Pages excluding this page: \_\_10\_\_

Group ID.	Question Paper Set	Question Serial No.
C1		16
		21

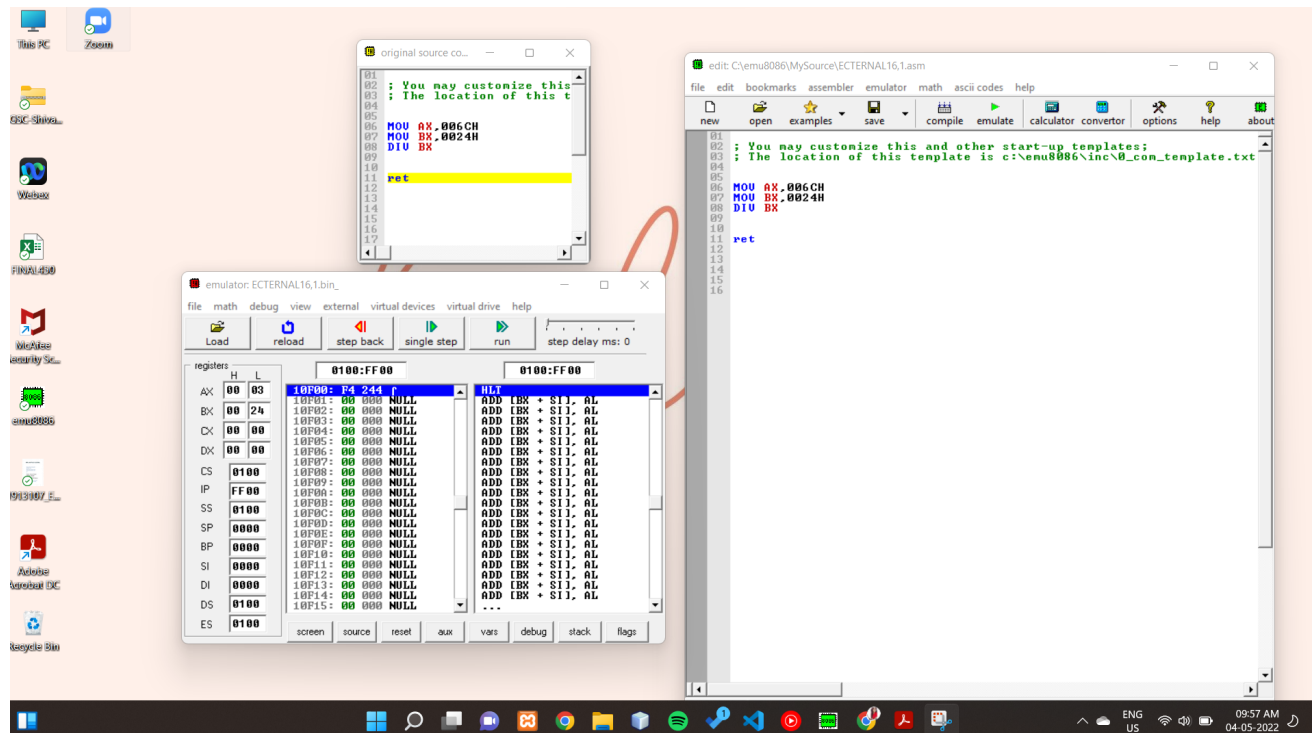
*Shivani*

Signature of the Student

Question.16) Design an ALP for the Division of two 16-bit numbers. Show the calculation on the paper and

validate in execution also.

a)  $6C / 24$



Shivani

(1)

1913107

Shivani Paliwal - 1913107 - Question 21 and 16

Question-167 Division of two 16-bit numbers

a)  $6C / 24$ 

Code:

```

MOV    AX, 006C H
MOV    BX, 0024 H
DIV    BX
HLT

```

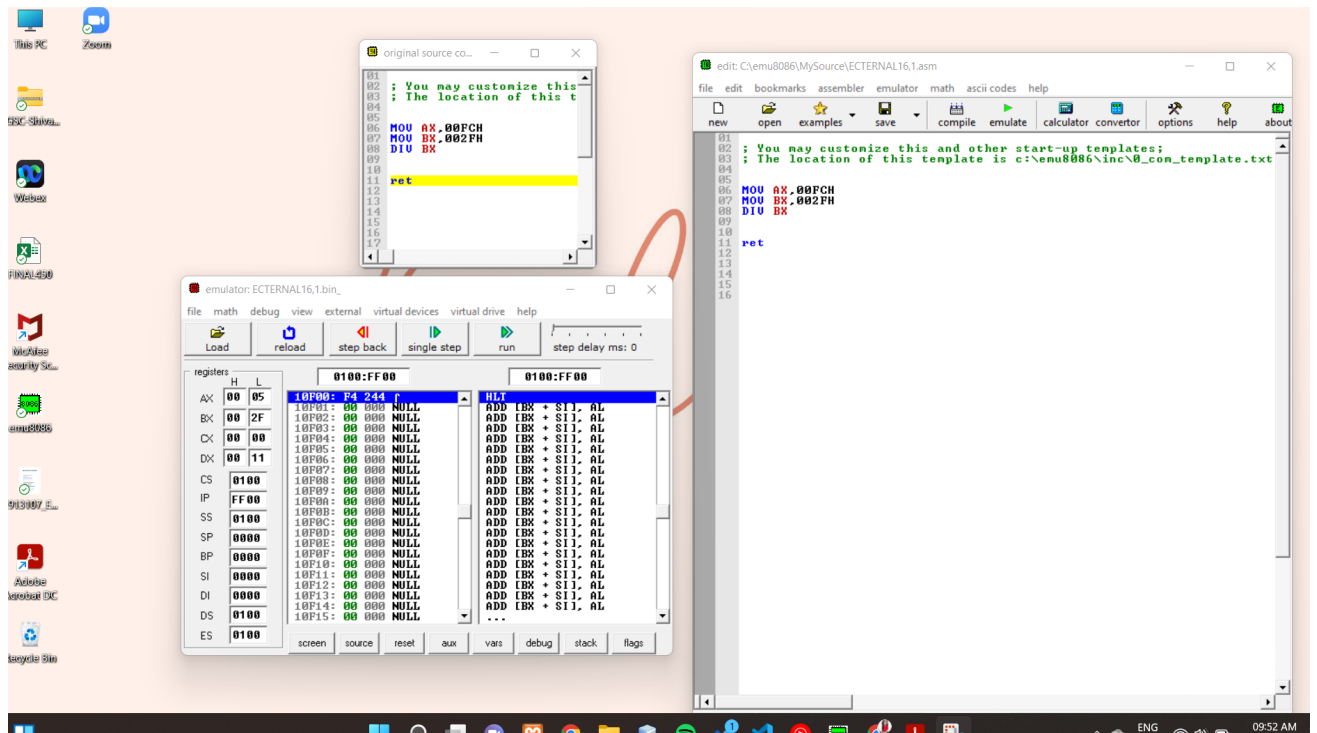
Output: The quotient will be stored in the AX register i.e. 00 03 and the remainder in DX register i.e. 00 00

Single step calculation:

(I)	H L		(II)	H L		(III)	H L		(IV)	H L	
AX	00	00	AX	00	6C	AX	00	6C	AX	00	03
BX	00	00	BX	00	00	BX	00	24	BX	00	24
CX	00	00	CX	00	00	CX	00	00	CX	00	00
DX	00	00	DX	00	00	DX	00	00	DX	00	00

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b) FC/ 2F



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(2)

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b) FC/2F

```

code:  MOV  AX, 00FCH
        MOV  BX, 002FH
        DIV  BX
        HLT

```

Output: The quotient will be stored in the AX register i.e. 00 05 and the remainder in DX register i.e. 00 11

Single step calculation

I		II		III		IV	
H	L	H	L	H	L	H	L
AX	00 00	00 FC	00 00	00 FC	00 2F	00 05	
BX	00 00	00 00	00 00	00 00	00 00	00 2F	
CX	00 00	00 00	00 00	00 00	00 00	00 00	
DX	00 00	00 00	00 00	00 00	00 00	00 11	

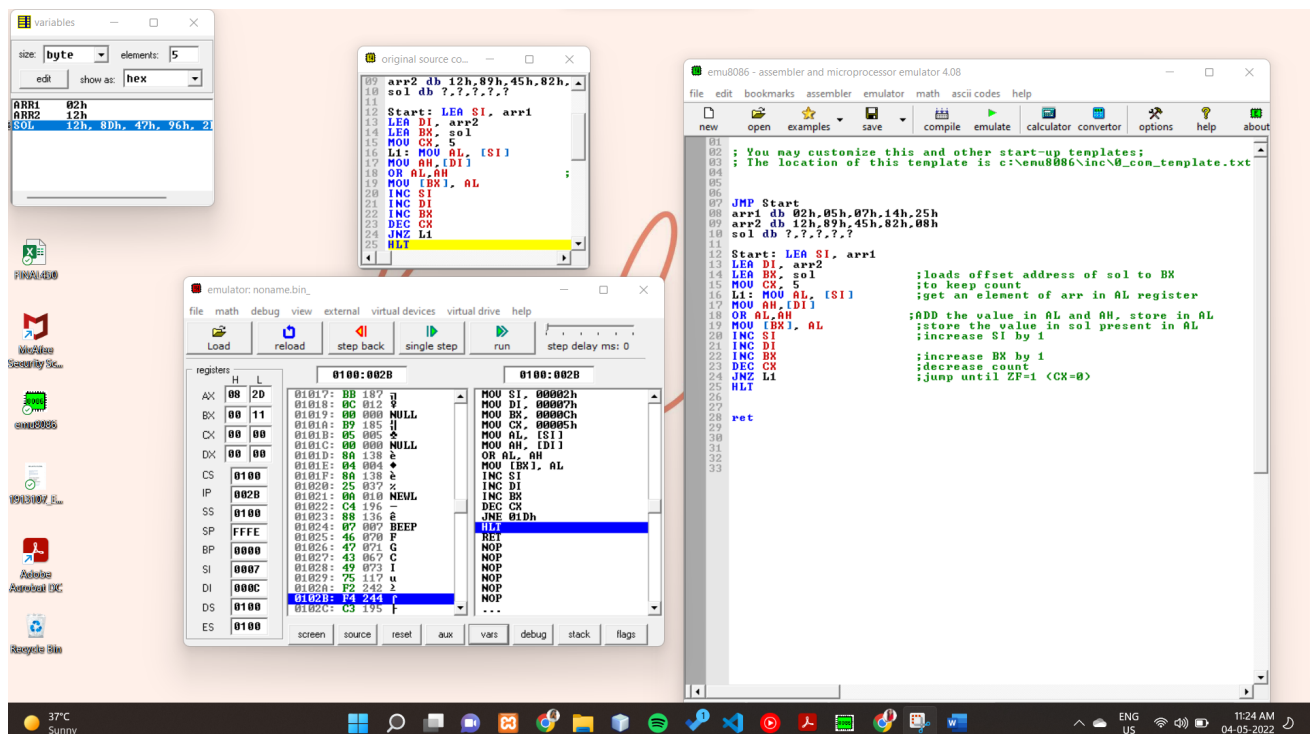
Mivani

Question.21) Design an ALP, to perform the following operations on the given five numbers and store the results in a vector

A=[ 02 H 05 H 07 H 14 H 25 H]

B=[12 H 89 H 45 H 82 H 08 H]

A) OR





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(3)

19/3/07

Question  
21

vec A = [02H 05H 07H 14H 25H]  
B = [12H 89H 45H 82H 08H]

i) OR      ii) XOR      iii) AND

i) OR

```
JMP start
arr1 db 02h, 05h, 07h, 14h, 25h
arr2 db 12h, 89h, 45h, 82h, 08h
sol db ?, ?, ?, ?, ?
```

start : LEA SI, arr1

LEA DI, arr2

LEA BX, sol

MOV CX, 5

L1 : MOV AL, [SI]

MOV AH, [DI]

OR AL, AH

MUV [BX], AL

INC SI

INC DI

INC BX

DEC CX

JNZ L1

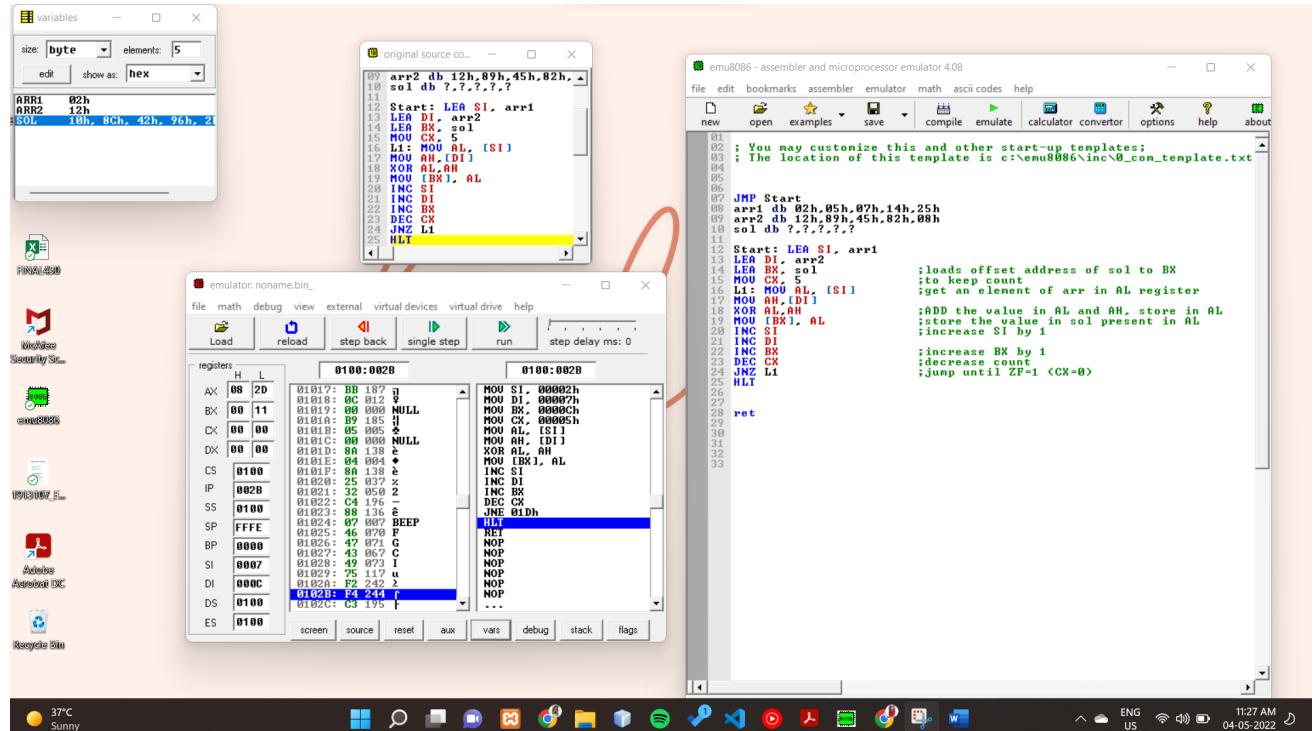
INT

ret

Output: sol: 12h, 8Dh, 47h, 2Dh

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## B) XOR





priva

(4)

19/3/07

ii) XOR

```

jmp      start
arr1     db  02h, 05h, 07h, 14h, 25h
arr2     db  12h, 89h, 45h, 82h, 08h
rol      db  ?, ?, ?, ?, ?

```

```

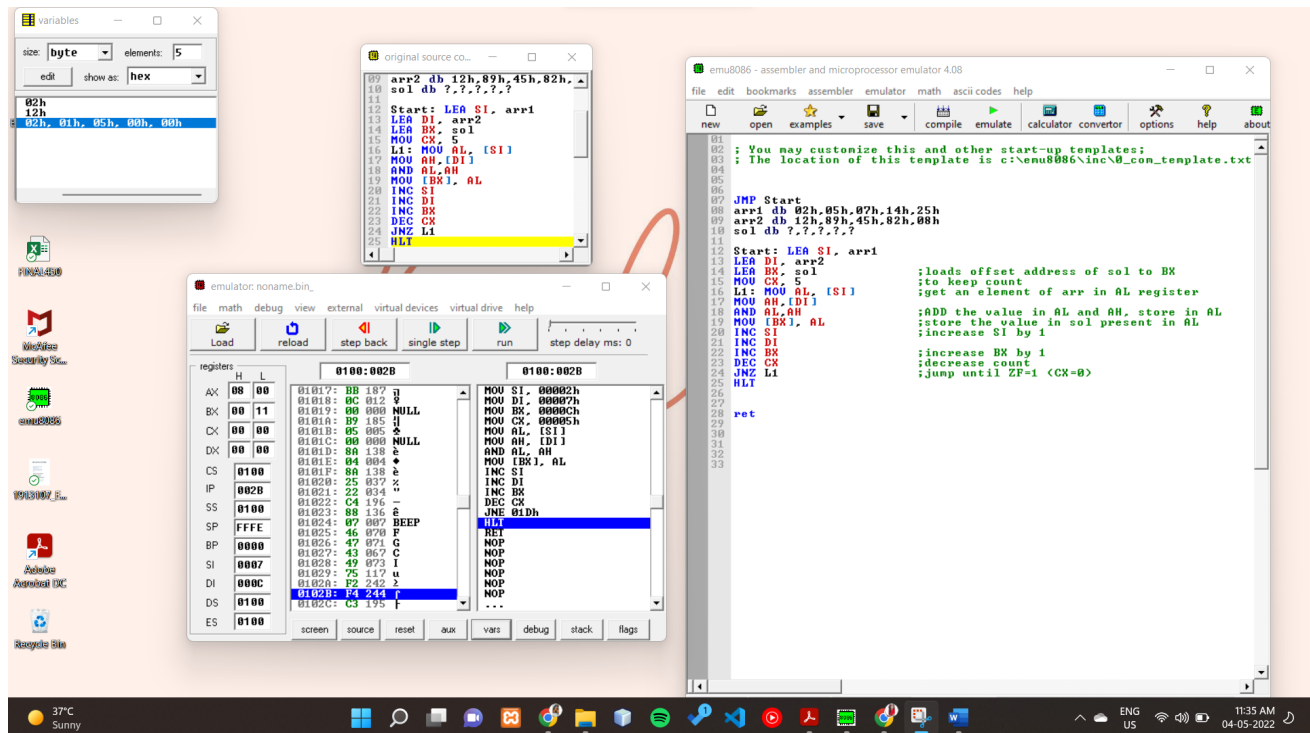
start:   LEA    SI, arr1
LEA      DI, arr2
LEA      BX, rol
MOV      CX, 5
L1:      MOV    AL, [SI]
MOV      AH, [DI]
XOR      AL, AH
MOV      [BX], AL
INC      SI
INC      DI
INC      BX
DEC      CX
JNZ      L1
HLT
ret

```

Output : rol: 10h, 8Ch, 42h, 96h, 2Dh

priva

## C) AND



mivasi

(5)

1913107

iii) AND

```

jmp      start
arr1     db 02h, 05h, 07h, 14h, 25h
arr2     db 12h, 89h, 45h, 82h, 08h
sdl      db ?, ?, ?, ?, ?

```

```

start:   LEA SI, arr1

```

```

LEA DI, arr2

```

```

LEA BX, arr2

```

```

MOV CX, 5

```

```

L1:      MOV AL, [SI]

```

```

MOV AH, [DI]

```

```

AND AL, AH

```

```

MOV [BX], AL

```

```

INC SI

```

```

INC DI

```

```

INC BX

```

```

DEC CX

```

```

JNZ L1

```

```

HLT

```

ret

~~Input:~~ Input: 02h, 01h, 05h, 00h, 00h  
Output:

mivasi