AMERICAN INTERNATIONAL UNIVERSITY BANGLADESH

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MICROPROCESSOR AND EMBEDDED SYSTEMS

Assignment Title: Mid Assignment-1

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Assignment on 8086:-

Question 1:- Draw the block diagram of an 8086 Microprocessor.

Answer 1:-

The block diagram of 8086 microprocessor :-

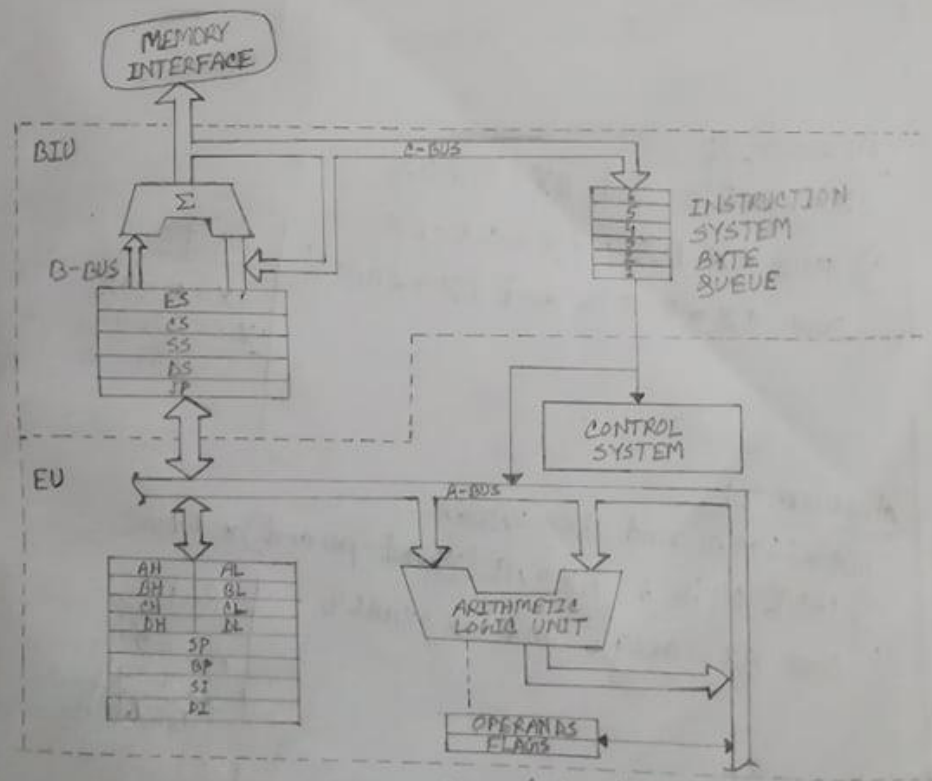

figure : 8086 internal block diagram.

Question 2: If AX = 6699h and BX = 2AB6h. Then, find out the value of "AX" and "BX" after performing the following instruction:-

a) Xchg AH, BL

Answer 2:

Code:

```
MOV AX, 6699h
MOV BX, 2AB6h
Xchg AH, BL
```

Calculation:

Xchg AH, BL; Exchanges the value between AH & BL

Now AH = B6h and BL = 66h

And AX = B699h and BX = 2A66h

AX = 6699h
AH AL

BX = 2AB6h
BH BL

Question 3: If CX = ABC0h and DX = 2BB0h. Then, find out the value of "CX" and "DX" after performing the following instruction:-

a) SUB CX, DX

Answer 3:

Code:

```
MOV CX, 0ABC0h
MOV DX, 2BB0h
SUB CX, DX
```

Calculation:

SUB CX, DX; CX = CX − DX

Now CX = 2010h and DX = 2BB0h

Ruff:

CX = ABC0h
DX = 2BB0h
− 2010h

Question 4: If AX = 6699h and BX = 2AB6h. Then, find out the value of "AX" and "BX" after performing the following instruction:-

a) MUL 04h

Answer 4:-

Code:

```
MOV AX, 6699h
MOV BX, 2AB6h
MUL 04h
```

- wrong parameters: MUL 04h:
  There should be a register or a memory location.

Question 5: If AX = AB09h and BX = 2AB6h. Then, find out the value of "AX" and "BX" after performing the following instruction:-

a) INC BH

Answer 5:

Code:

```
MOV AX, 0AB09h
MOV BX, 2AB6h
INC BH
```

Calculation:

INC BH ; Increment the value of BH by 1.

Now BH = 2Bh

And AX = AB09h and BX = 2BB6h

Diff:

BX = 2A B6h
BH BL

BH = 2A
+1
2Bh

Question 6: If AX = AB09h and CX = 4. Then, find out the value of "AX" and "CX" after performing the following instruction :-

a) L1: ADD AL, 2
Loop L1

Answer 6:

Code:

```
MOV AX, 0AB09h
MOV CX, 4
L1: ADD AL, 2
    Loop L1
```

Calculation:

CX = 4	CX = 3	CX = 2	CX = 1
AL = AL + 2	AL = AL + 2	AL = AL + 2	AL = AL + 2
= 09 + 2	= 0B + 2	= 0D + 2	= 0F + 2
= 0Bh	= 0Dh	= 0Fh	= 11h

Now, AL = 11h and CX = 0000h
And AX = AB11h and CX = 0000h.

Question 7: If AX = 0002h and CX = 0004h. Then, find out the value of "AX" and "CX" after performing the following instruction :-

a) MUL CX

Answer 7:

Code:

```
MOV AX, 0002h
MOV CX, 0004h
MUL CX
```

Calculation:

MUL CX; AX = AL (fixed operand) * CL
Now AX = 0008h and CX = 0004h

Ruff:

AL = 02h
CL = 04h
0008h