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Question no.: Q.3(A)

-> Internal Architecture of 8086 :-

a] 8086 has two blocks BIU and EU.

b] The BIU performs all bus operations such as instruction fetching, reading and writing operands for memory and calculating the addresses of the memory operands. The instructions bytes are transfered to the instruction queue.

c] EU executes instructions from the instruction system byte queue.

d] BIU contains instruction queue, Segment registers, Instruction pointer, Address adder.

e] EU contains control circuitry, instruction decoder, ALU, Pointer and index Register, Flag register.

(P.T.O.)

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Question no.: Q.3(A)

Minimum Mode	Maximum mode.
i) In minimum mode there can be only one processor i.e. 8086.	i) In maximum mode there can be multiple processors with 8086, like 8087.
ii) MN/$\overline{MX}$ is 1 to indicate minimum mode.	ii) MN/$\overline{MX}$ is 0 to indicate maximum mode.
iii) ALE for the latch is given by 8086 as it is the only processor in the circuit.	iii) ALE for the latch is given by 8288 bus controller as there can be multiple processor in the circuit
iv) $\overline{INTA}$ is given by 8086 in response to an interrupt on INTR line.	iv) $\overline{INTA}$ is given by 8288 bus controller in response to an interrupt on INTR line.
v) The circuit is simpler.	v) The circuit is more complex.
vi) Multiprocessing cannot be performed hence performance is lower.	vi) As multiprocessing can be performed, it can give very high performance.

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Question no. : Q. 3 (B)

→

```
ASSOME CS: CODE, DS: DATA
DATA SEGMENT                    : Data segment starts
LIST DB 52H, 23H, 56H, 45H, ---  : List of byte numbers
COUNT EQU OF                    : Number of bytes in the list
LARGEST DB 01H DUP(?)           : One byte is reserved for the
                                  largest number

DATA ENDS
CODE SEGMENT
START :   MOV AX, DATA
          MOV DS, AX
          MOV SI, OFFSET LIST
          MOV CL, COUNT
          MOV AL, (SI)

AGAIN :   CMP AL, [SI + 1]
          JNL NEXT
          MOV AL, [SI+1]

NEXT :    INC SI
          DEC CL
          JNZ AGAIN
          MOV SI, OFFSET LARGEST
          MOV (SI), AL
          MOV AH, 4CH
```

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Question no.: Q.3 (B)

```
        INT  21 H
        CODE ENDS
END         START
```