CSE341 ASSIGNMENT-01

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(1) We know, Physical ~~address~~ location = Segment no x 10H + Offset

Here, Code segment = 25H

So, for calculating 2nd location = 25H * 10H + 1

= 251H

Also, we know the last ~~memory~~ address = FFFF

So, for calculating last second memory location = 25H * 10H + (FFFF-1)

= 250H + FFFEH

= 1024E

(2) I would choose to use microcontroller for this purpose, because the program for microcontroller is fixed once it is designed. Moreover, the cost is comparatively lower. Another reason to choose microcontroller is to design a microwave the task is fixed and predefined. Power consumption is lower for microcontroller. That's why, I would choose microcontroller.

(3) Address bus is unidirectional because, the information transfer in address bus take place from the processor to the I/O components. And Data bus is bidirectional. The data of data bus can flow in both to or ~~from~~ from the microprocessor.

(4) We know, Physical ~~address~~ location = Base address x 10H + Offset

∴ Offset = Physical location - Base address x 10H

= A6BA1H - 1234 x 10H

= 94861 ;[Higher than FFFF]

(Ans)

(5) We Know,

$2^{20} \rightarrow 1\,\text{Mbyte} \rightarrow 1,048,576\ \text{bytes}$

Given, total physical memory = 16 MB

∴ Number of address bit $= \log_2 16\,\text{MB}$

$= \log_2 16\,\text{MB} * 1\,\text{MB}$

$= \log_2 2^4 * 2^{20} \quad [2^{20} \rightarrow 1\,\text{MB}]$

$= \log_2 2^{24}$

= 24 bits (Ans)

(6) We Know,

Physical location = Segment no x 10H + Offset

∴ Segment no/Base address $= \frac{\text{Physical location} - \text{Offset}}{10}$

Given, Physical location = 3BD15 H

Offset = 1234

∴ Base address $= \frac{3BD15\,H - 1234}{10}$

$= \frac{3AAE1}{10}$

As we know, ~~the~~ to calculate base address we have to divide by 10. But in the above calculation we get 3AAE1, we can't divide it by 10.

(7) A specific physical address can have more than two logical addresses. For example,

if CS = A000 and IP = 1234, then physical address = A1234
if CS = A100 and IP = 0234, then physical address = A1234
if CS = A120 and IP = 0034, then physical address = A1234

Observing the above scenario, we can see that the physical address A1234 is same but it has more than two logical addresses. ~~where for the first case the segment range is A000:1234 A000:FFFF, for the second case the range is A100:1234 A100:FFFF and for the third case the segment range is A120:1234 A120:FFFF~~

(8) Given, CS = 1000H, DS = 2000H, ES = 3000H, SS = 4000H and SI = 1234H
The given command is "mov ax,[si]"

We know for the source index (SI), ~~the segmen~~ is the offset of Data segment (DS).

So, Physical address = Segment no * 10H + Offset
= DS * 10H + SI
= 2000H * 10H + 1234H
= 20000 + 1234
= 21234 H
(Ans)