Midterm 1

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Ans. to the Que No. 1

LEA : LEA is an instruction that load "offset variable" while adjusting the address between 16 and 32 bits as necessary. "LEA (16 bit reg), (32 bit address)" loads the lower 16 bits of the address into the register, and "LEA (32 bit reg), (16 bit address)" loads the 32 bit register with the address zero extended to 32 bits.

Offset: Offset is an assembler directive in X86 assembly language. It actually means "address" and is a way of handling the overloading of the "mov" instruction.

1) mov si, offset variable

2) mov si, variable

The first line loads SI with the address of variable. The second line loads SI with the value stored at the address of variable.

Ans to the Que No. 2

Data segment is the starting point of the Data segment in a Program and DATA is the name given to this segment and SEGMENT is the keyword for defining segments, where we can declare our variables. On the other hand, DATA is a Library function.

Ans. to the Que No. 3

Given,

DS: DATA CS: CODE

Here we use this code to assign the cs for the code and ds is assigned for the data.

Ans to the Que No. 4

To access memory, we use : BX, SI, DI, BP.

[BX+SI]	[SI]	[BX+SI+d8]
[BX+DI]	[DI]	[BX+DI+d8]
[BP+SI]	d16	[BP+SI+d8]
[BP+DI]	[BX]	[BP+DI+d8]

[SI+d8]	[BX+SI+d16]	[SI+d16]
[DI+d8]	[BX+DI+d16]	[DI+d16]
[BP+d8]	[BP+SI+d16]	[BP+d16]
[BX+d8]	[BP+DI+d16]	[BX+d16]