1. In 32-bit mode, aside from the stack pointer (ESP), what other register points to variables on the stack?

EBP, Extended frame pointer register.

1. Name at least four CPU status flags.
   1. Zero
   2. Carry
   3. Overflow
   4. Sign
2. Which flag is set when the result of an unsigned arithmetic operation is too large to fit into the destination?

Carry flag

1. Which flag is set when the result of a signed arithmetic operation is either too large or too small to fit into the destination?

Overflow flag

1. (True/False): When a register operand size is 32 bits and the REX prefix is used, the R8Dregister is available for programs to use.

True

1. Which flag is set when an arithmetic or logical operation generates a negative result?

Sign

1. Which part of the CPU performs floating-point arithmetic?

Floating-point unit, FPU

1. On a 32-bit processor, how many bits are contained in each floating-point data register?

80 bits

9.(True/False): The x86-64 instruction set is backward-compatible with the x86 instruction set.

true

10.(True/False): In current 64-bit chip implementations, all 64 bits are used for addressing.

false

11.(True/False): The Itanium instruction set is completely different from the x86 instruction set.

true

12.(True/False): Static RAM is usually less expensive than dynamic RAM.

false

13.(True/False): The 64-bit RDI register is available when the REX prefix is used.

true

14.(True/False): In native 64-bit mode, you can use 16-bit real mode, but not the virtual-8086mode.

false

15.(True/False): The x86-64 processors have 4 more general-purpose registers than the x86processors.

false

16.(True/False): The 64-bit version of Microsoft Windows does not support virtual-8086 mode.

true

17.(True/False): DRAM can only be erased using ultraviolet light.

false

18.(True/False): In 64-bit mode, you can use up to eight floating-point registers.

true

19.(True/False): A bus is a plastic cable that is attached to the motherboard at both ends, but does not sit directly on the motherboard.

false

20.(True/False): CMOS RAM is the same as static RAM, meaning that it holds its value with-out any extra power or refresh cycles.

false

21.(True/False): PCI connectors are used for graphics cards and sound cards.

true

22.(True/False): The 8259A is a controller that handles external interrupts from hardware devices.

true

23.(True/False): The acronym PCI stands for programmable component interface.

false

24.(True/False): VRAM stands for virtual random-access memory.

false

25. At which level(s) can an assembly language program manipulate input/output?

Level 0-3, high level/application, OS, BIOS, hardware

26. Why do game programs often send their sound output directly to the sound card’s hardware ports?

Direct access to hardware, takes advantage of the hardware’s special features and increased speed, but is not portable.