

## ETE 134 Final Exam (Spring, 2006) Study Guide

### ***Electrical Concepts and Safety***

- 1) What precautions below will protect a computer from ESD while you work on internal components?  
computer power, attach your wrist strap to the case, place the computer on a grounding matt, remove the plug from the power outlet, plug your wrist strap into the power outlet, stab the monitor firmly with a screwdriver.

#### **What Electrical Term does each statement define?**

- 2) The ability of a substance to impede current
- 3) Electro-Motive Force which causes electrons to have a net flow in one direction (Electrical pressure)
- 4) The rate of flow of electrical charge.
- 5) A unit of energy
- 6) The unit of electrical work, energy expended over time.

- 7) What will connecting the case of a computer, the ground wire from the power outlet and black wires in a do to EMI and ESD?

- 8) What does Joule Rating have to do with surge protector protection?

### ***Processors***

- 9) What is a RISC?
- 10) What is a CISC?
- 11) Which Processor is faster, a RISC or a CISC?
- 12) What is a Dual-Core Processor?
- 13) How is the term “megahertz” related to a CPU?
- 14) If a system multiplier is set to “20,” what is the relationship between the clock speed of the CPU and the system bus?
- 15) What is Hyper Threading?
- 16) What would lowering the CPU or memory voltage possibly allow?

### ***Basic Hardware and Terminology***

- 17) What four types of signals are commonly found on a system bus?
- 18) What is DMA?
- 19) When the keyboard needs to tell the CPU that a key was pressed, *how does it get the CPU's attention?*
- 20) When the CPU needs to tell a hardware device to do something, *where does it put the command it needs to send?*
- 21) When The CPU needs to send a command to a hardware device, *where does it go to find the programs on how to communicate with the device ?*
- 22) What is Polling?
- 23) What is Throughput performance?
- 24) Which connection system has the greatest throughput?  
a) 16 Bit, 8M Hz ISA; b) 32 Bit, 33M Hz PCI; c) USB 1.0 (with 12Mb/sec throughput); d) USB 2.0 (with 480Mbps); e) AGP
- 25) How does PCI Express (PCIe) propose to move data faster than the existing PCI Bus?
- 26) What are the characteristics of USB in terms of, number of devices, computer resources, speeds, and set-up
- 27) What is a Wait State?

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- 28) If your computer calls for “2100” memory, can you substitute “2700?”
- 29) If a system bus moves 64 bits of data, using DDRSDRAM on a 200Mhz (actual clock speed) FSB, what is the throughput?
- 30) How is Serial related to Parallel?
- 31) The Byte “AE” is sent in an odd parity system. What should the transmitted word look like in binary?
- 32) Describe a Packet or Frame of data.
- 33) What is a Pixel?
- 34) What are the three basic colors of a standard CRT monitor Pixel?

### ***Memory Concepts (generally)***

#### **What does each statement describe?**

- 35) Software stored in secondary storage to tell the CPU how to communicate with hardware.
- 36) ROM Programs copied into volatile memory to tell the CPU how to communicate with hardware
- 37) Where data is stored in volatile memory by the hardware, for the CPU (and vise-versa)
- 38) Programs stored in non-volatile memory to tell the CPU how to communicate with the hardware
- 39) Settings stored in battery backed volatile memory to tell the CPU and chip set how to work with the hardware

- 40) When a computer is turned on or re-booted, what are the 4 major steps in the process?
- 41) What is SRAM?
- 42) What is DRAM?
- 43) What is Memory Latency (i.e.: CAS Latency)?
- 44) If you purchase memory that mentions “CL3” what is the manufacturer telling you?
- 45) What is the ROMBIOS?

#### **Identify the permanent storage location bios source**

- 46) Start-up Bios
- 47) Bios for devices with expansion cards
- 48) Device Drivers

- 49) What is Cache?
- 50) How is cache used by the computer?
- 51) What is the difference between L1 and L2 Cache?
- 52) What does the acronym “DDR” in “DDR-SDRAM” indicate about the RAM?
- 53) How has Intel implemented the “800 MHz Front Side Bus?”
- 54) What is “Dual Channel” memory?
- 55) If your computer has an 800MHz FSB, and only 1 DIMM, What is your actual maximum throughput in MBpS?
- 56) Rank the memory devices below in order of their speed from fastest to slowest:
  - A) L1 Cache; B) ROM for a PCI connected device; C) Extended Memory Modules (DIMMS); D) COAST
  - E) L2 Cache on the CPU card

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57) Rank the types of memory below in order of their speed from fastest to slowest:

- A) 133 MHz Asynchronous DRAM; B) L1 SRAM; C) 133 MHz SDRAM; D) 133 MHz Dual-Channel DDR-SDRAM; E) L2 SRAM; F) 200 MHz DDRSDRAM

58) How does “Hyper-Transport” promise faster performance?

59) Compare the throughput performance of the Intel 800Mhz FSB and Hyper-Transport 2.0 at 22.4GBpS.

### ***Drive Questions***

60) What does IDE stand for?

61) What does SCSI mean?

62) Compare SCSI and IDE devices in terms of complexity, speed, quality, expense, and number of devices

63) What advantages do Serial ATA Hard drives offer over traditional parallel IDE drives?

64) What is the difference between Physical Drive Geometry and Logical Drive Geometry?

65) Which is the relationship between Sectors, Tracks, and Cylinders with regard to hard drives?

66) On any floppy disk or hard disk, how many **Bytes** are stored in each sector?

67) List the operations performed by the FORMAT command on a *Floppy Drive*.

68) What is the purpose of a Low Level Format on a Hard Drive?

69) What does a High Level FAT Format do to a hard drive?

70) When would Low Level Formats be done by computer users?

71) Where is the Master Boot Record located ***on a partitioned hard drive?***

### **What dose each statement describe?**

- |   |
|---|
| 72) Contains a list of child directories and files stored on the main directory of a disk |
| 73) Lists how each cluster of space on a FAT Formatted disk is linked                     |
| 74) Contains information needed by the OS to use a specific logical drive                 |

75) Describe the File Allocation Table in terms of entries and purpose?

76) What information would be found in a FLOPPY Root Directory Entry?

77) What information would be found in the Master Boot Record on a floppy.

78) In NTFS where is the File attribute information stored?

79) What is a drive Cluster?

80) List the order of the steps required to install a second hard drive on an IDE chain with only one hard drive.

81) Why is it a good idea to have frequently used drives on separate IDE chains?

82) On a cable select cable, which connector goes to which drive?

83) On a standard, two-drive, *non-cable-select* hard drive ribbon cable, which connector is used by the Master?

84) How can you tell the difference between an ATA 33 and ATA 66+ cable?

85) What is Disk Caching, and why is it used?

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- 86) How is hardware disk caching superior to software?
- 87) How is software disk caching superior to hardware disk caching?
- 88) What is a "RAID?"
- 89) What can disk fragmentation do to the recovery of a deleted file?
- 90) What happens when a file is deleted from the recycle bin?
- 91) What is a Fragmented file and how is it created?
- 92) What does "Disk De-fragmentation" do?
- 93) What are the advantages of periodic drive De-fragmentation?
- 94) When an NTFS disk is defragmented will the Master File Table also be defragmented?
- 95) Is it possible to schedule XP to automatically back-up system information to another hard drive or CDROM?
- 96) How many partitions will Win 2K support on one physical hard drive? Which are bootable?
- 97) How many Logical drives will Win 2K allow on any one hard drive?
- 98) A file containing 31,450 Bytes of information is stored on a hard drive with 8KB clusters (FAT 32). How many clusters will be used to store the file?

### ***DOS Commands and Miscellaneous***

- 99) Which DOS Command will show you a list of commands that can be used in the DOS prompt?
- 100) Which command(s) will allow you do move the DOS prompt from A:\ to c:\windows\command\?