

Comptia A+ Certification Training (2009)

Essentials (Exam Code: 220-701) & Practical Application (Exam Code: 220-702)

Session 1

Section A: Technician Professionalism

- Introduction
- Hygiene
- What to Wear
- Operational Procedures
- Professional Appearance
- Honesty and Integrity
- Dependability and Responsibility
- Authorization of Work
- Adaptability and Versatility
- Sensitivity

Section B: Successful Communication

- What Not to Do
- Assertive Communication
- Computer Technician Etiquette
- Electrostatic Discharge
- Antistatic Mats and Wrist Straps
- Antistatic Bags
- Electromagnetic and RF Interference
- Physical Safety
- Building Services

Section C: The Visible PC

- The System Unit
- Standard Peripherals
- Connecting the Monitor
- USB and FireWire
- Network Connections
- Audio Connections
- Additional Connections
- Legacy Connectors
- VGA Connectors
- PC Tips

Section D: Inside the System Unit

- Working in the System Unit
- CPU and RAM
- Motherboard
- Power Supply and Connections
- Drives
- Cooling the System
- System Unit Tips
- Section E: Visible Windows
- Windows Only
- Workgroups and Domains
- Window Tips
- Windows 2000 Pro
- Windows XP Versions
- Windows Vista Versions
- Media Center

Section F: 64-Bit Windows

- 64-Bit Computing
- Measuring CPU/RAM Capacity
- 32-Bit vs. 64-Bit
- 64-Bit Versions of Windows
- 64-Bit Tips

Session 2

Section A: Windows: The Grand Tour

- Mouse Clicking
- Modern Login Screens
- Windows Desktop
- Task Manager
- Compatibility Mode
- Desktop Icons
- Windows Explorer
- Windows XP Desktop
- Windows Vista Desktop

Session 2 (continued)

Section B: Hot Keys, Function Keys, and Aero

- Function Keys and Hot Keys
- Windows Logo Key
- Function Keys
- CTRL+ESC
- ALT and SHIFT Key Combinations
- Cut, Copy, Paste, and Undo

Section C: Critical System Files

- System Folder Location
- Fonts and Offline Items
- System32 Folder
- Temp Folder
- Program Files
- Documents and Settings
- Common User Folders
- My Documents
- Application Data
- Start Menu
- Vista System Files
- Vista Users Folder
- Folder Memorization

Section D: Registry and System Tools

- System Registry
- User Account Control
- Registry Keys
- Other Registry Items
- Registry Editor 32
- The Control Panel
- Administrative and System Tools
- Disk Management and Services
- MMC
- System Tools

Section E: Understanding Microprocessors

- Man in the Box
- Code Book and Registers
- Binary
- Section F: Machine Language
- Machine Language Introduction
- Program Commands
- Clock Speed
- RAM
- Bits and Bytes
- What RAM Is
- The Data Bus and RAM
- The MCC and RAM
- Determining RAM Size
- Address Registers
- Section G: Pipelines
- Four-Stage Pipeline
- Prefetch and Decode
- Execute and Write
- The Pipeline at Work
- Pipeline Stalls
- Modern Pipelines
- Caching
- RAM Cache
- L1 Cache
- L2 Cache
- L3 Cache
- RAM Caches at Work

Session 3

Section A: Clock Multiplier

- System Crystal
- Clock Multiplier
- Front Side Bus
- Multiple Pipelines
- Processes
- Threads
- Hyperthreading
- Tips

Session 3 (continued)

Section B: CPUs

- CPU Overview
- Sockets
- CPU History - Intel®
- CPU History - AMD®
- Socket Types
- Intel® Information
- Multiple Cores Concept
- AMD® Information
- Dual-Core Families
- Phenom™ CPUs
- Core™ i7 and i5
- Mobile Processors
- Server Processors

Section C: Installing and Upgrading CPUs

- Installing a CPU
- Fan Installation
- Connecting the Fan
- Additional Considerations
- Fins, Fans, and Heat Pipes
- Liquid Cooling
- Phase Change Cooling
- CPU Troubleshooting Tips
- CPU Fan Troubleshooting Tips
- Upgrade Troubleshooting Tips
- CPU-Z

Section D: RAM

- Transistors and Capacitors
- RAM Tech Tip
- Memory Chips
- Synchronous Dynamic RAM (SDRAM)
- RAMBUS
- DDR
- DDR2 and DDR3
- Motherboard RAM Capacity
- Installing RAM
- Dual Channel
- Triple Channel
- Recap
- Upgrading RAM
- Specialized Memory
- Single vs. Double-Sided
- Maintaining and Repairing RAM
- RAM Count
- Testing RAM

Section E: BIOS and CMOS

- Chipset
- BIOS
- BIOS, POST, and CMOS
- CMOS Setup
- Advanced Chipset Features
- Power Management
- Frequency and Voltage Control
- Discard/Save Changes
- BIOS Security
- TPM
- CMOS Battery
- BIOS Version
- POST
- Beep Error Codes
- Text Error Codes

Section F: Expansion Bus

- Beyond the EDB
- Northbridge
- PCI
- AGP
- PCIe
- AMR and CNR

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Session 4

Section A: Motherboards and Cases

- Form Factors
- ATX
- MicroATX
- BTX
- NLX
- Motherboard and Accessories
- Inside the Case
- Front Panel Connections
- The Motherboard Book
- Coarse/Fine
- Installing the Motherboard
- Attaching Front Panel Connections
- Expansion Card Tips

Section B: Powering the PC

- Electricity
- Measuring Electricity
- Wattage Ratings
- DC/AC
- Testing Tools
- ATX Power Supply
- P4 Connector
- Standard Power Cable
- Soldering Irons
- ATX 12 V Connectors
- Additional Connectors
- Larger Power Supply
- Modular Connections
- Power Supply Rails
- AC Adapters
- Power Supply Maintenance
- Intermittent Rebooting
- Power Supply Tips
- Testing Power Supplies
- Surges/Sags
- UPS

Section C: The Physical Hard Drive

- Inside the Hard Drive
- Read/Write Armatures
- Data Scale
- Flux Reversal
- CHS Values

Section D: Understanding ATA

- ATA
- IDE
- Connecting ATA/IDE Drives
- Master/Slave Drives
- DMA
- ATA-2
- Logical Block Addressing
- ATA-3 and S.M.A.R.T.
- ATA-4
- ATA-5 and Ultra DMA
- ATA-6
- ATA-7 and SATA
- Hard Drive Configuration/Boot Priority
- Attaching Multiple Drives
- Warning Sounds

Section E: Advanced ATA

- IDE/EIDE/ATA Tips
- Drive Sizes
- Solid-State Drives
- eSATA

Session 5

Section A: The World of SCSI

- SCSI
- Termination
- SCSI IDs

Session 5 (continued)

Section B: RAID

- RAID Overview
- RAID 0
- RAID 1
- Parity
- RAID 5
- RAID 0+1
- RAID Controllers
- Motherboard RAID Support
- Configuring RAID
- RAID Array
- Hardware RAID vs. Software RAID
- Swapping Drives in RAID
- Expansion Cards

Section C: Partitioning

- Partitioning Overview
- Disk Management
- Change Drive Letters
- Boot Sector
- File Formats
- NTFS

Section D: Mounting and Formatting

- Mount Points
- Formatting the Drive
- Allocation Units
- Quick vs. Standard Formatting
- Dynamic Disks
- Simple Volumes
- Spanned Volumes
- Striped Volumes
- Extending and Shrinking Volumes

Section E: Managing and Maintaining Drives

- Defragmenting
- Defragmentation Defined
- Check Disk
- Missing and Failed Drives

Section F: Removable Media

- Removable Media
- Floppy Drives
- Optical Media
- CD-ROM
- CD-R
- CD-RW and DVD
- DVD+/-R and DVD+/-RW
- Double-Sided and Dual-Layer DVD
- Optical Media and the A+ Exam
- Blu-ray
- Installing Optical Drives
- Cleaning Optical Media
- Flash Media

Session 6

Section A: Installing and Configuring Windows

- Installation Steps
- Requirements
- Compatibility
- Backup/Restore
- Installation Methodologies
- Automation of Installation
- Image Installation
- Partitions
- Network Options
- Region and Language
- Post Install Jobs
- Set Up During Install
- Windows Update
- Activation
- Third Party Device Tips

Session 6 (continued)

Section B: Troubleshooting Windows

- Boot Files
- Boot.ini
- Boot Manager
- Troubleshooting Boot Problems
- Blue Screen of Death
- XP Recovery Console
- Vista System Recovery
- Windows Startup Problems
- MSConfig
- Windows Advanced Boot Options
- Event Viewer
- Services
- Restore Points
- Safely Remove Hardware
- Troubleshooting Applications
- Recovery Partitions

Section C: Command Prompt

- The Command Prompt
- Directory Commands
- Creating and Removing Directories
- MSConfig Via Command Prompt
- DOS Command: EDIT
- DOS Command: COPY
- Switches
- Copy by Extension
- Copying as an ASCII File
- Verify
- Overwrite Without Prompting
- DOS Command: XCOPY
- Formatting from Command Prompt

Section D: Users and Groups

- Authentication and Authorization
- SIDs in Action
- Biometric Devices
- Smart Cards
- Creating Users
- Administrators
- Groups and Users
- Power Users
- Managing Users and Groups
- Creating Groups

Section E: NTFS

- NTFS Permissions
- Networking Shares
- Folder Permissions
- Setting User Permissions
- Inheritance
- NTFS File Attributes
- File Encryption
- UAC/Create Password

Section F: Backing Up the System

- File Attributes
- Backups
- Full Backup
- Incremental vs. Differential Backup
- ERD/Automated System Recovery
- Performing Backups
- Vista Backup and Restore Center
- Migrating Data
- Migration and Recycling

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Session 7

Section A: General Purpose I/O

- Serial Ports
- USB
- Human Interface Devices
- FireWire
- Keyboards
- Regional/Language Options
- ASCII/Unicode
- Accessibility Options
- Repeat Settings/Typematic Buffer
- The Mouse
- Windows Mobile Devices
- KVM Switch

Section B: Video

- Video Cards
- CRT Monitors
- Refresh Rates
- Pixel Aspect Ratio
- Safety Considerations
- Degaussing
- Carrying a CRT
- LCD Monitors
- Polarity of Light
- How an LCD Works
- LCD Pixels
- CCFL
- Brightness/Contrast

Section C: Managing and Maintaining

Video

- Resolution
- Color Depth
- Native Resolution
- Video Card Considerations
- CrossFire/SLI
- Installing Cards/Drivers
- DirectX
- Drivers
- Display Settings
- Dual Monitors
- Troubleshooting Video Problems
- VGA/DVI
- HDMI
- Analog Video Connections
- Monitor Cleaning

Section D: Multimedia

- Sound Waves/Compression
- MIDI/FM Synthesis
- Codecs/Player Association
- SC Standards/Initial Outputs
- Surround 5.1
- Additional Outputs
- S/PDIF
- Video/Compression
- Video Capture Devices
- Windows Media Center
- Personal Video Recorders
- Web Cams
- Multimedia Installation Processes
- Sound Card Drivers
- Port Assignment within Device Manager
- Sound Settings
- Headsets
- Front Panel Connectors
- Individual Application Considerations
- Volume Control

Session 8

Section A: Computer Assembly

- Parts Checklist
- Motherboard/CPU Assembly
- POST
- Assembling within the Case
- Second Self Test
- Installing Drives
- Additional Considerations
- CMOS Clear Jumper
- Installing Windows
- Drive Lock
- Post-Installation Tips

Section B: Network Cabling

- Cabling
- Coaxial Cable
- Twisted-Pair Cable
- Category Levels
- Fiberoptic Cable
- Fire Ratings
- Network Connections
- Cable Nomenclature Tips
- Section C: Ethernet
- Early Networks
- Ethernet Recipe Book
- Packets
- Physical Addresses
- Addressing a Packet
- 10Base-T
- 100Base-T
- Switch
- 1000Base-T
- Link Lights
- Speed Indications

Section D: Network Protocols and TCP/IP

- NetBIOS/Broadcasting
- TCP/IP
- Logical Addressing
- Network IDs
- Default Gateway
- Subnet Mask
- Configuring a Static IP Address
- ipconfig Commands
- Ping
- DHCP
- Configuring a Dynamic IP Address
- DHCP Issues
- Repair

Section E: Getting Online

- IP Class Tips
- Class A, B, and C
- Dial-up
- DSL
- ADSL
- Cable
- Satellite
- ISDN
- Fiber
- WAN/LAN Connections
- DNS
- DNS Server
- IP Address Resolution
- DNS Troubleshooting
- nslookup
- DIG
- Configuring a Router
- Private IP Addresses/NAT

Section F: Troubleshoot Networking Conn.

- First Rule of Problems on the Internet
- Loopback Plugs
- Cable Testers
- Other Troubleshooting Options
- Troubleshooting Commands
- Ping -l
 - Traceroute

Session 9

Section A: Internet Applications Part I

- Ports
- Netstat
- Using TCPView
- Proxy Server
- Configuring a Proxy Server
- Pop-ups and Filters
- HTTPS

Section B: Internet Applications Part II

- Well-Known Port Tips
- E-mail
- Configuring E-mail Accounts
- File Transfer Protocol
- Telnet
- Secure Shell
- VoIP
- Single Inline Package
- Remote Desktop Protocol
- Shared Folders

Section C: Threats and Firewalls

- Malware
- Viruses
- Trojans and Worms
- Spam
- Spyware
- Phishing
- Configuring a Software Firewall
- Open Ports
- Hardware and Software Firewalls
- Configuring a Hardware Firewall
- Port Forwarding
- DMZ

Section D: Anti-Malware

- Anti-Malware Tips
- Microsoft Security Essentials
- System File Checker
- Remediation
- Social Engineering/Phishing Tips

Section E: Wireless

- Wireless Technologies
- 802.11
- 802.11b
- 802.11a
- 802.11g
- 802.11n
- Configuring a Wireless Access Point
- Configuring SSIDs
- Wireless Encryption Options
- Wireless Setup Considerations
- Physical Placement
- Installing NICs and Drivers
- Netbook and Laptop Considerations
- Configuring a Wireless Client
- Connection Control
- WLAN/DHCP Server Configuration
- Bluetooth
- Types/Profile Functions
- Configuring Bluetooth

Section F: Printers

- Dot Matrix
- Ink-Jet
- Laser
- Toner
- Laser Printer Diagram
- Thermal and Solid Ink Printers
- Parallel Cables and Ports
- Port Modes
- USB Printers and Cables
- Network Printer Connections
- Outdated Connection Tips

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Session 10

Section A: Installing and Maintaining Printers

- Print Drivers and Languages
- Adding Printers
- Printer Properties
- Sharing Printers
- Printer Maintenance
- Material Safety Data Sheets
- Troubleshooting Printers
- Paper Jams
- Drum Issues
- Lines
- Smearing and Garbage Printout

Section B: Portable Computing

- Portable Computing Options
- External and Video Ports
- Function Key
- Docking Stations
- ExpressCards and PC Cards
- Media and USB Ports
- Wireless
- Laptop Batteries
- AC Adapters

Section C: Laptop Repair and Power Management

- Power Management
- CMOS Power Settings
- Wake On Settings
- Power On Alarm
- Windows Power Management
- Power Management Tip
- Laptop Repair
- Laptop Repair Tools
- Laptop RAM
- Mini PCI
- Fans and Hard Drives
- Screens and Keyboards
- Touch Pads
- CPUs and Motherboards
- CMOS Batteries and Speakers