FC0-U41

INTRODUCTION

The CompTIA Strata IT Fundamentals exam commercial version is designed to show that the successful candidate has the knowledge to identify and explain PC components, setup a basic PC workstation, conduct basic software installation, identify compatibility issues and recognize/prevent basic security risks. Further this test will assess the candidate's knowledge in the areas of Green IT and preventative maintenance of computers. This test is intended for candidates who are advanced home users, and are considering the pursuit of a CompTIA A+ certification.

Domain	% of Examination
1.0 Technology and Computer Hardware Basics	40%
2.0 Compatibility Issues and Common Errors	13%
3.0 Software Installation and Functions	11%
4.0 Security	16%
5.0 Green IT and Preventative Maintenance	20%
Total	**100%**

**Note: The bulleted lists below each objective are not exhaustive lists. Even though they are not included in this document, other examples of technologies, processes or tasks pertaining to each objective may also be included on the exam.

(A list of acronyms used in these objectives appears at the end of this document.)

1.0 Technology and Computer Hardware Basics

1.1 Identify basic IT vocabulary.
- Processor speed/cores
    - o Single/Dual/Quad core
    - o Intel based / Cell based/AMD based
    - o GHz vs. MHz
    - o Processor cache size
    - o Bus speed (as they relate to motherboards, memory, etc)
- RAM
    - o DDR, DDR2, DDR3
    - o DIMMS vs. SODIMMS
- Hard drives
    - o RPMs
    - o Cache size
    - o Flash based vs. traditional hard drives
    - o SATA, SCSI, IDE
    - o Internal vs. external
    - o Local vs. network shares
- Networking
    - o Wireless networking terms
        - ▪ 802.11a/b/g/n
        - ▪ Bluetooth
        - ▪ RF (Radio Frequency)
        - ▪ Interference
        - ▪ WAP (Wireless Access Point)
        - ▪ SSID
        - ▪ Wireless router
    - o Ethernet technologies
        - ▪ CAT5 connections and cables
        - ▪ Home plug (Ethernet over Power)
        - ▪ Broadband router
        - ▪ DSL and cable modems
        - ▪ Standard vs. crossover cables
        - ▪ Auto-negotiating (speed and duplex)
    - o Internet
        - ▪ Protocols
            - • HTTP vs. HTTPS
            - • FTP
            - • SSL
            - • POP3
            - • SMTP
            - • IMAP
            - • DNS
            - • DHCP
            - • TCP/IP (IPv4 address, IPv6 address)
        - ▪ Browser features
            - • Plug-ins
            - • Customization (text sizes, text styles, etc)

- Anti-phishing features
- ActiveX and Java
- Cookies
- Internet Cache

1.2 Demonstrate the proper use of the following devices:
- Monitors
  - Adjust monitor settings (brightness, contrast, etc)
- Desktop
- Server
- Portable
  - Laptop
  - PDA
  - Smartphone
  - Netbook

1.3 Explain the characteristics and functions of internal and external storage devices
- CD/CD-RW Drive
- DVD/DVD-RW Drive
- Blu-Ray Disk Drive
- USB storage (solid state vs. magnetic disk)
- Multi-card reader and writer
- Hard drives
- Mobile media devices (e.g. MP3 player or PDAs)

1.4 Explain the characteristics and functions of peripheral devices
- Digital camera
- Web camera
- Speaker
- Tuner
- Microphone
- Printer / scanner

1.5 Explain the characteristics and functions of core input devices
- Keyboard
- Mouse
- Tablet (touch screen)
- Numeric keypad
- Gamepad

1.6 Identify the risks associated with upgrading the following technologies and equipment.
- Operating systems (open source and commercial)
  - Compatibility issues
  - Upgrade issues
  - Data loss
- PC Speed/storage capability
  - Compatibility issues
  - Upgrade issues

- o Bus differences
- o Hardware failure
- Application
  - o Minimum requirements
  - o Compatibility issues
- Bandwidth and contention
  - o VoIP
  - o Streaming
  - o Web delivered services
- Automatic application and operating system updates
  - o Risks of automatic updates
  - o Risks of not using automatic updates
  - o Risks of not using manufacturer websites

1.7 Demonstrate the ability to set up a basic PC workstation
- Identify differences between connector types
  - o DVI, VGA, HDMI
  - o USB, PS/2
  - o FireWire
  - o Bluetooth and Wireless
  - o Serial
  - o Network connectors
  - o PCMCIA
  - o ExpressCard
  - o 3.5mm audio jack
  - o Power connectors
- Monitor types
- Computer (desktop, tower, laptop, custom cases)
- Keyboard (keyboard layout: regionalization)
- Mouse (touchpad, optical, trackball)
- Printer (USB, wireless, networked)
- Voltage and power requirements
- Turn on and use the PC and peripherals

2.0 Compatibility Issues and Common Errors

2.1 Identify basic compatibility issues between:
- Processor performance
- RAM memory
- USB (1.1, 2.0)
- FireWire
- PS/2
- Ethernet
- Wireless networks

2.2 Recognize common operational problems caused by hardware
- Critical error message or crash
- System lockup (freeze)
- Application will not start or load

- Cannot logon to network
- Driver / hardware compatibility
- Input device will not function

2.3 Demonstrate the ability to minimize risks
- Data loss
- Loss of service
- Damage to equipment

3.0 Software Installation and Functions

3.1 Conduct basic software installation, removal and/or upgrading.
- Follow basic installation/upgrade procedures
  - Check PC meets minimum requirements
  - Administrative Rights
  - Firewall access (unblocking ports for proper functionality)
- Configure the Operating System
  - Adjust basic settings (e.g. volume, date, time, time zone)
  - User accounts
  - Power settings (power save, sleep mode, etc)
  - Screen resolutions
- Documentation
  - Licensing (Commercial, Freeware, Shareware)
  - Software registration
- Digital Rights Management
- Software removal (clean un-installation)
- Re-installation (clean installation)

3.2 Identify issues related to folder and file management
- Create, delete, rename and move folders
  - Assign folder structure during installation
- Create, delete, rename, move and print files
- Importance of following back-up guidelines and procedures

3.3 Explain the function and purpose of software tools
- Performance and error correction tools
- Activity or event logging
- Back-up tools
- Disk clean-up tools
- File compression tools

4.0 Security

4.1 Recognize basic security risks and procedures to prevent them.
- Identify Risks
  - Social Engineering
  - Viruses
  - Worms
  - Trojan Horses

- o Unauthorized Access
  - ▪ Hackers
  - ▪ Phishing
  - ▪ Spyware
  - ▪ Adware
  - ▪ Malware
  - ▪ Identity Fraud
- o File and folder sharing
- o Web browser risks
- o Operating System vulnerability
  - ▪ Service packs
  - ▪ Security updates
- o Theft
- o Open or free networks
- Identify prevention methods
  - o User awareness/education
  - o Anti-virus software
  - o Ensure proper security certificate are used (SSL)
  - o Wireless encryption (WPA/WEP)
  - o Anti-spyware
  - o File encryption
  - o Firewalls
  - o Anti-spam software
  - o Password best practice
    - ▪ Complexity (password construction)
    - ▪ Password confidentiality
    - ▪ Change frequency
    - ▪ Re-use
    - ▪ Utilization
- Identify access control methods
  - o Passwords and User ID
  - o Screensavers
  - o Physical security of hardware
  - o Locks
  - o Parental controls
  - o Smart card
  - o Fingerprint reader
  - o One time password
- Identify security threats related to the following:
  - o Media used for backup (theft or loss)
  - o Screen visibility (shoulder surfing)
  - o Cookies (can be stolen, stores passwords, browser tracking)
  - o Pop-ups (automatic installations, click on links to malware)
  - o Accidental mis-configuration

4.2 Recognize security breaches and ways to resolve them.
- Recognize the proper diagnostic procedures when infected with a virus
  - o Run anti-virus scan
  - o Quarantine virus when possible
  - o Escalate to IT professional when needed

- Recognize the proper procedures to maintain a secure environment
    - Regular antivirus and malware scans
    - Application / operating system updates

5.0 Green IT and Preventative Maintenance

5.1 Identify environmentally sound techniques to preserve power and dispose of materials.
- Environmentally hazardous substance disposal
    - Battery disposal
    - CRT disposal-replace with LCDs
    - Recycling of computers for reuse or parts
    - Toner disposal
    - Cleaning supply disposal
    - Materials that meet RoHS guidelines
- Power management (Power saving features)
    - Shutdown/power off procedures/policies at end of day
    - Automatic power off after 15 minutes of non-use
    - Shutdown scripts
- Power management PCs and lower power servers replace large desktops with energy efficient laptops and thin clients

5.2 Identify green techniques, equipment and procedures.
- Define Cloud computing
    - Define Virtualization (Have more than one server running on a single piece of hardware)
    - Reduced power and cooling consumption
- Duplex printing and use lower cost per page network printers
- Terminal Servers
- Energy Star rating
- Use low power NAS (network attached storage) instead of file servers
- Employee telecommuting
    - Reduced emissions
    - Reduced office space heating, lighting, etc
- Solid State drives
- Define VoIP and how it relates to Green IT
- Green building infrastructure
    - Eliminate cool air leaks in server rooms
    - Proper spacing for cooling IT equipment
    - Energy efficient cooling fans-BIOS adjustable

5.3 Identify preventative maintenance products, techniques, and how to use them.
- Liquid cleaning compounds
- Types of materials to clean contacts and connections
- Compressed air
- Cleaning monitors
- Cleaning removable media devices
- Ventilation, dust and moisture control on the PC hardware interior
- Surge suppressors
- Use of ESD equipment

- Wire placement and safety

CompTIA Strata Acronyms

Introduction

The following is a list of acronyms which appear on the CompTIA Strata tests. Candidates are encouraged to review the complete list and attain a working knowledge of all listed acronyms as a part of a comprehensive test preparation program.

ACRONYM	SPELLED OUT
AC	alternating current
AGP	accelerated graphics port
BIOS	basic input/output system
CD	compact disc
CD-ROM	compact disc-read-only memory
CD-RW	compact disc-rewritable
CPU	central processing unit
CRT	cathode-ray tube
DC	direct current
DDR	double data-rate
DDR RAM	double data-rate random access memory
DDR SDRAM	double data-rate synchronous dynamic random access memory
DHCP	dynamic host configuration protocol
DIMM	dual inline memory module
DNS	domain name service or domain name server
DSL	digital subscriber line
DVD	digital video disc or digital versatile disc
DVD-RAM	digital video disc-random access memory
DVD-ROM	digital video disc-read only memory
DVD-R	digital video disc-recordable
DVD-RW	digital video disc-rewritable
DVI	digital visual interface
EMI	electromagnetic interference
EMP	electromagnetic pulse
ESD	electrostatic discharge
FAT	file allocation table
FAT32	32-bit file allocation table
FDD	floppy disk drive
Gb	gigabit
GB	gigabyte
GHz	gigahertz
HDD	hard disk drive
HDMi	high definition media interface
HTML	hypertext markup language
HTTP	hypertext transfer protocol
HTTPS	hypertext transfer protocol over secure sockets layer
IDE	integrated drive electronics
IP	internet protocol

IR	infrared
ISDN	integrated services digital network
Kb	kilobit
KB	Kilobyte or knowledge base
LAN	local area network
Mb	megabit
MB	megabyte
MHz	megahertz
MP3	Moving Picture Experts Group Layer 3 Audio
MP4	Moving Picture Experts Group Layer 4
MPEG	Moving Picture Experts Group
NIC	network interface card
OS	operating system
PC	personal computer
PCI	peripheral component interconnect
PCIe	peripheral component interconnect express
PCIX	peripheral component interconnect extended
PCMCIA	Personal Computer Memory Card International Association
PDA	personal digital assistant
RAM	random access memory
RJ	registered jack
RJ-11	registered jack function 11
RJ-45	registered jack function 45
SATA	serial advanced technology attachment
SCSI	small computer system interface
SD card	secure digital card
SOHO	small office/home office
SSID	service set identifier
SSL	secure sockets layer
TB	terabyte
TCP	transmission control protocol
TCP/IP	transmission control protocol/internet protocol
UPS	uninterruptible power supply
URL	uniform resource locator
USB	universal serial bus
VGA	video graphics array
VoIP	voice over internet protocol
WAP	wireless application protocol
WEP	wired equivalent privacy
WIFI	wireless fidelity
WPA	wireless protected access