CompTIA IT Fundamentals Certification Exam Objectives

EXAM NUMBER: FC0-U51

About the Exam

Candidates are encouraged to use this document to help prepare for the CompTIA IT Fundamentals FC0-U51 exam, which measures foundational skills for those considering a career in IT and later considering the pursuit of a CompTIA A+ or similar certification. Successful candidates will have the knowledge required to:

- **Identify and explain basic computer components**
- **Set up a basic workstation**
- **Conduct basic software installation**
- **Establish basic network connectivity**
- **Identify compatibility issues**
- **Identify/prevent basic security risks**
- **Understand safety and preventive maintenance of computers**

These content examples are meant to clarify the test objectives and should not be construed as a comprehensive listing of all the content of this examination.

EXAM DEVELOPMENT

CompTIA exams result from subject matter expert workshops and industry-wide survey results regarding the skills and knowledge required of an entry-level IT professional.

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PLEASE NOTE

The lists of examples provided in bulleted format are not exhaustive lists. Other examples of technologies, processes or tasks pertaining to each objective may also be included on the exam although not listed or covered in this objectives document. CompTIA is constantly reviewing the content of our exams and updating test questions to be sure our exams are current and the security of the questions is protected. When necessary, we will publish updated exams based on existing exam objectives. Please know that all related exam preparation materials will still be valid.

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TEST DETAILS

Required exam	FC0-U51
Number of questions	Maximum of 75
Type of questions	Multiple choice
Length of test	60 minutes
Recommended experience	None
Passing score	650 (on a scale of 100–900)

EXAM OBJECTIVES (DOMAINS)

The table below lists the domains measured by this examination
and the extent to which they are represented:

DOMAIN	PERCENTAGE OF EXAMINATION
1.0 Software	21%
2.0 Hardware	18%
3.0 Security	21%
4.0 Networking	16%
5.0 Basic IT Literacy	24%
Total	**100%**

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1.0 Software

1.1 Compare and contrast common operating systems and their functions and features.

- **Types**
  - Mobile
    - Apple iOS
    - Android
    - Windows phone
    - Blackberry
  - Workstation
    - Windows
    - Mac
    - Linux
    - Chrome OS

- Open source vs. commercial
- **Software compatibility for different OS types and versions**
- **Awareness of hardware compatibility for OS support**
  - 32-bit vs. 64-bit operating systems
- **Basic functions of an operating system**
  - Interface between user and machine
  - Coordination of hardware components
  - Provides environment for software to function

- Monitors system health and functionality
- Displays structure/directories for data management

1.2 Identify common programs, applications and their purpose.

- **Types**
  - Productivity software
    - Word processing
    - Spreadsheet software
    - Email software
    - Basic database software
    - PDF viewers/creators
    - Presentation software
    - Desktop publishing software
    - Personal information manager
    - Remote desktop software
  - Collaboration software
    - Online workspace
    - Document storage/sharing
    - Screen sharing software
    - Video conferencing software
    - Instant messaging software
    - Email software
  - Utility software
    - Anti-malware
    - Software firewalls
    - Diagnostic/maintenance software
    - Compression software
  - Specialized software
    - CAD
    - Graphic design

- Medical
- Scientific
- Financial
- Gaming
- Entertainment
- Open source vs. commercial
- **Platforms**
  - Mobile
  - Desktop
  - Web-based
- **Common file types**
  - Documents
    - txt
    - rtf
    - doc/docx
    - xls/xlsx
    - ppt/pptx
    - pdf
  - Audio
    - mp3
    - wav
    - flac
    - aac
    - m4a
  - Images
    - jpg

- gif
- tiff
- png
- bmp
- Video
  - mpg
  - mp4
  - flv
  - wmv
  - avi
- Executables
  - exe
  - msi
  - app
  - bat
  - scexe
- Compression formats
  - rar
  - tar
  - zip
  - dmg
  - iso
  - 7zip/7z
  - gzip/gz
  - jar

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1.3 Given a scenario, use software management best practices.

- **Install/uninstall**
  - OS features
  - Applications
  - Drivers
- **Patching/updates for OS, drivers, applications and security software**
  - Scheduling
  - Frequency
  - Automatic updates
- **Software version identification and compatibility**
- **Licensing**
  - Product keys
  - Single/multi-license

1.4 Identify the following alternative technologies and their purpose.

- **Virtualization**
  - Physical machine vs. virtual machine
- **Cloud computing**
  - Streaming media (audio/video)
- **Web applications**
- **VoIP**
- **Telepresence**
- **Gesture-based interaction**
  - Swiping
  - Pinch-to-zoom
  - Kinetics

1.5 Explain the basic software features and functions of wireless devices.

- **Unlocking/security**
- **Bluetooth pairing**
  - Hands-free
  - Data transfer
- **Wireless connection setup**
  - Verify wireless capabilities
  - Turn on WiFi
  - Locate SSID
  - Enter wireless password (if applicable)
  - Verify Internet connection
- **Email configuration**
  - POP3
  - IMAP
  - SMTP
- **Screen orientation**
- **Synchronization configuration**
- **Airplane mode**
- **Stores for mobile applications**

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2.0 Hardware

2.1 Identify basic wired and wireless peripherals and their purpose.

- **Output devices**
  - Printer
    - Laser
    - Inkjet
    - Thermal
  - Display devices
    - Flatscreen
    - CRT
    - Projector
  - Speakers

- **Input devices**
  - Keyboard
  - Pointing devices
    - Mouse
    - Touchpad
    - Joystick
    - Stylus pen
    - Trackball
  - Scanner
  - Microphone
  - Webcam

- **Input and output devices**
  - Fax
  - External storage devices
    - Flash drive
    - External hard drive
    - CD/DVD/Blu-ray
    - Network attached storage
    - Memory card
    - Mobile media players
    - Smartphone
  - Touch screen display

2.2 Compare and contrast common computer connector types.

- **Video**
  - VGA
  - DVI
  - HDMI
  - Display port/Thunderbolt
  - USB
  - S-video
  - Component - RGB

- **FireWire**
- **eSATA**
- **Thunderbolt**
- **USB**
- **PS/2**
- **Parallel**
- **Serial**
- **RJ-45**

- **RJ-11**
- **Audio**
- **Power**
  - AC/DC

2.3 Identify the purpose of internal computer components.

- **CPU**
- **Power supply**
- **RAM**
- **Storage**
  - Optical drive
  - Hard drive
  - Solid state drive

- **Expansion cards**
  - Video card
  - Audio card
  - Network card
  - Modem

- **Motherboard/mainboard**
- **System cooling**
  - Case fans
  - CPU fans
  - Liquid cooling

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3.0 Security

3.1 Define basic security threats.

- **Malware**
  - Virus
  - Trojan
  - Spyware
  - Ransomware
- **Phishing**
- **Social engineering**
- **Spam**
- **Password cracking**
- **Physical security**
  - Hardware theft
  - Software/license theft
  - Shoulder surfing
  - Dumpster diving

3.2 Given a scenario, use security best practices.

- **Password management**
  - Password complexity
  - Change default passwords
  - Password confidentiality
  - Password expiration
  - Password reuse
  - Awareness of single sign-on
- **Device hardening**
  - Disable unused features
    - Disable Bluetooth
    - Disable NFC
  - Timeout/lock options
  - Enable security software/features
    - Software firewall
    - Anti-malware
  - Encryption options
- **Open WiFi vs. secure WiFi**
- **Multifactor authentication**
- **Suspicious emails**
  - Attachments
  - Hyperlinks
- **Act on security software alerts**
- **Admin vs. user vs. guest account**

3.3 Given a scenario, use web-browsing best practices.

- **Recognize a secure connection/website**
  - https
  - lock symbol
- **Recognize invalid certificate warnings**
- **Recognize suspicious links**
- **Recognize suspicious banner ads**
- **Recognize adware symptoms**
  - Constant popups
  - Home page redirection
  - Search engine redirection
- **Limit the use of Personally identifiable information (PII)**
- **Update browsers and plugins**
  - Avoid use of legacy browsers
- **Disable unneeded/suspicious browser plugins, toolbars and extensions**
- **Disable autofill forms/passwords**
- **Clear browser cache/history/cookies**
- **Recognize untrusted source warnings**
- **Risks of using public workstations**

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4.0 Networking

4.1 Given a scenario, set up and configure a basic SOHO router (wired/wireless).

- Verify wired connection, if applicable
- Set WEP vs. WPA vs. WPA2
- Change SSID from default
- Apply a new wireless password
- Change admin password for router
- Connect to the new network
- Verify Internet connectivity
- Update firmware if necessary

4.2 Compare and contrast cellular, wireless and wired data connections.

- High vs. low mobility
- High vs. low availability
- High vs. low throughput/bandwidth
- High vs. low reliability
- Connection delay
- Number of concurrent connections
- Levels of security

4.3 Compare and contrast different methods of sharing and storage.

- HTTP vs. HTTPS
  - Browser-based file downloads
- FTP vs. FTPS vs. SFTP
- Local vs. hosted storage
  - Cloud-based services
    - Cloud-based
      collaborative applications
    - Cloud-based storage
  - File and print sharing
    - Workgroup
    - Homegroup
  - Network drives
  - Network attached storage
  - Direct attached storage
  - External hard drives
- Peer-to-peer
  - Local ad hoc network
    - Bluetooth sharing
  - Direct link (PC-to-PC)
  - Online peer-to-peer network
- Network vs. local printing
  - USB
  - Wireless/wired network

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5.0 Basic IT Literacy

5.1 Perform appropriate steps to set up a basic workstation.

- Plug in cables
- Power on computer
- Follow initial operating
  system setup wizard
    - Localization settings
    - Screen resolution
    - Audio settings

- Install security software
- Configure peripherals (if applicable)
- Uninstall unneeded software (if applicable)
- Configure and verify Internet connection
- Install additional software (if applicable)
- Run software and security updates

- Other user accounts (if applicable)
- Basic cable management

5.2 Explain the basic methods of navigating an operating system.

- Executing programs
- Difference between shortcuts and files
- Manipulating files
    - Open
    - Edit
    - Save
    - Move
    - Copy

    - Cut
    - Paste
    - Delete
    - Rename
- Read-only vs. modifiable files
- Navigate a file structure
- Search, sort and display files
- Create screen captures

- Navigate with hot keys
- Folder and file size
- Accessibility options
- Folder and file permissions

5.3 Given a scenario, implement basic support concepts.

- Check for external issues
    - Loose cables/connections
    - Power
    - Physical damage

- Manufacturer documentation
- Manufacturer websites
- Technical community groups
- Internet search engine
- Contact technical support

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5.4 Explain basic backup concepts.

- **Importance of backups**
- **Scheduling**
- **Frequency**
- **Storage mediums**
  - Locally attached storage
  - Offsite/cloud-based
  - Network-attached storage
- **Backup verification and testing**

5.5 Describe the importance and impact of various environmental and safety concepts.

- **Proper disposal methods**
  - RoHS
  - CRT monitors
  - Scanners
  - Batteries
  - Ink/toner
  - Hard drives
- **Power**
  - Energy-efficient devices
  - Power profiles
    - Power options
    - Sleep/hibernation
  - UPS vs. surge protector vs. power strip
    - Power limitations
  - International power differences

- **Device placement**
  - Airflow
  - Humidity
  - Temperature
  - Dust accumulation
  - EMI
- **Electrostatic discharge concepts**
- **Ergonomic concepts**
  - Proper keyboard and mouse placement
  - Sitting positions
  - Monitor level placement
- **Follow manufacturer safety guidelines**

CompTIA IT Fundamentals Acronyms

The following is a list of acronyms that appear on the CompTIA IT Fundamentals exam. Candidates are encouraged to review the complete list and attain a working knowledge of all listed acronyms as part of a comprehensive exam preparation program.

ACRONYM	SPELLED OUT	ACRONYM	SPELLED OUT
AC	Alternating Current	Gb	Gigabit
BD-ROM	Blu-ray Disc Read-Only Memory	GB	Gigabyte
BIOS	Basic Input/Output System	GHz	Gigahertz
CAD	Computer-Aided Design	GPS	Global Postioning System
CAM	Computer-Aided Manufacturing	HDD	Hard Disk Drive
CD	Compact Disc	HDMI	High Definition Media Interface
CD-ROM	Compact Disc-Read-Only Memory	HTML	Hypertext Markup Language
CD-RW	Compact Disc-Rewritable	HTTP	Hypertext Transfer Protocol
CPU	Central Processing Unit	HTTPS	Hypertext Transfer Protocol over SSL
CRT	Cathode-Ray Tube	IDE	Integrated Drive Electronics
DC	Direct Current	IMAP	Internet Mail Access Protocol
DDR	Double Data Rate	IP	Internet Protocol
DDR RAM	Double Data Rate Random-Access Memory	IR	Infrared
DDR SDRAM	Double Data Rate Synchronous Dynamic Random-Access Memory	ISDN	Integrated Services Digital Network
		ISP	Internet Service Provider
DHCP	Dynamic Host Configuration Protocol	Kb	Kilobit
DIMM	Dual Inline Memory Module	KB	Kilobyte or Knowledge Base
DNS	Domain Name Services or Domain Name Server	LAN	Local Area Network
DSL	Digital Subscriber Line	Mb	Megabit
DVD	Digital Video Disc or Digital Versatile Disc	MB	Megabyte
DVD-DL	Digital Video Disc or Digital Versatile Disc Dual Layer	MHz	Megahertz
		MIDI	Musical Instrument Digital Interface
DVD-R	Digital Video Disc-Recordable	MP3	Moving Picture Experts Group Layer 3 Audio
DVD-RAM	Digital Video Disc-Random-Access Memory	MP4	Moving Picture Experts Group Layer 4
DVD-ROM	Digital Video Disc-Read-Only Memory	MPEG	Moving Picture Experts Group
DVD-RW	Digital Video Disc-Rewritable	NAS	Network Attached Storage
DVI	Digital Visual Interface	NFC	Near Field Communications
EMI	Electromagnetic Interference	NIC	Network Interface Card
EMP	Electromagnetic Pulse	OEM	Original Equipment Manufacturer
eSATA	External Serial Advanced Technology Attachment	OS	Operating System
ESD	Electrostatic Discharge	PC	Personal Computer
FAT	File Allocation Table	PCI	Peripheral Component Interconnect
FAT32	32-bit File Allocation Table	PCIe	Peripheral Component Interconnect express
FTP	File Transfer Protocol	PCIX	Peripheral Component Interconnect Extended
FTPS	File Transfer Protocol over SSL	PII	Personally Identifiable Information

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ACRONYM	SPELLED OUT
POP	Post Office Protocol
POP3	Post Office Protocol 3
POTS	Plain Old Telephone System
PS/2	Personal System 2
PSU	Power Supply Unit
RAM	Random-Access Memory
RGB	Red-Green-Blue
RJ	Registered Jack
RJ-11	Registered Jack Function 11
RJ-45	Registered Jack Function 45
RoHS	Restriction of Hazardous Substances
SATA	Serial Advanced Technology Attachment
SD Card	Secure Digital Card
SFTP	Secure File Transfer Protocol
SID	System Identifier
SMTP	Simple Mail Transfer Protocol
SOHO	Small Office, Home Office
SSD	Solid State Drive
SSID	Service Set Identifier
SSL	Secure Sockets Layer
TB	Terabyte
TCP	Transmission Control Protocol
TCP/IP	Transmission Control Protocol/Internet Protocol
UPS	Uninterruptable Power Supply
URL	Uniform Resource Locator
USB	Universal Serial Bus
VGA	Video Graphics Array
VoIP	Voice over Internet Protocol
VTC	Video Teleconference
WAN	Wide Area Network
WAP	Wireless Application Protocol
WEP	Wired Equivalency Privacy
WIFI	Wireless Fidelity
WiMAX	Worldwide Interoperability for Mircowave Access, Inc.
WLAN	Wireless Local Area Network
WPA	Wireless Protected Access
WPA2	Wireless Protected Access 2
WPS	Wireless Protected Setup

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CompTIA IT Fundamentals Proposed Hardware and Software List

CompTIA has included this sample list of hardware and software to assist candidates as they prepare for the CompTIA IT Fundamentals exam. This list may also be helpful for training companies that wish to create a lab component to their training offering. The bulleted lists below each topic are sample lists and not exhaustive.

EQUIPMENT
- Workstations – unpackaged workstations
- Unconfigured OS images
- Wireless router
- Workstation with virtualization software
- Laptop
- Basic printer
- External storage devices
- Tablet/smartphone
- Power strip/UPS

SPARE PARTS/HARDWARE
- Blank CDs/DVDs (for backup)
- Various cable types

TOOLS
- ESD wrist band (for demonstration)

SOFTWARE
- Operating system media
- Anti-malware software
- Productivity software
- Browser software
- Backup software