ExamLabs

CompTIA IT Fundamentals

Study Guide

Exam FC0-U61

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What Is the CompTIA IT Fundamentals+ (ITF+) Certification?

IT Fundamentals+ (ITF+) is a certification developed by the Computing Technology Industry Association (CompTIA) that exists to provide resources and education for the computer and technology community. This is the same body that developed the A+ exam for PC technicians, Network+ for networking experts, and Security+ for security practitioners.

Way back in 1995, members of the organization got together to develop a new certification that tests skills for IT. To ensure industry-wide support, it was sponsored by many past and present IT industry leaders like these:

- Compaq Computers
- Digital Equipment Corporation (a part of Compaq)
- IBM
- Lotus
- Microsoft
- Novell
- TSS
- U.S. Robotics
- US West
- Wave Technologies

The IT Fundamentals+ (ITF+) exam was designed to test the skills of those with little to no experience in the field but who want to show that they have a broad general understanding of core IT topics. It tests areas such as computer hardware, operating systems and applications, basic networking, security, and setting up and maintaining a computer.

Why Become IT Fundamentals+ (ITF+) Certified?

Because CompTIA is a well-respected developer of vendor-neutral industry certifications, becoming IT Fundamentals+ (ITF+) certified proves that you have a base level of knowledge in the specific areas tested by the IT Fundamentals+ (ITF+) objectives.

Four major benefits are associated with becoming IT Fundamentals+ (ITF+) certified:

Proof of Professional Achievement Computer professionals are pretty competitive when it comes to collecting more certifications than their peers. And because the IT Fundamentals+ (ITF+) certification broadly covers the entire field of computers, it's a great stepping-stone to prove that you have what it takes to succeed in this industry. Because it's rare to gain something that's worth a lot with little effort, I'll be honest—preparing for the IT Fundamentals+ (ITF+) exam isn't exactly a lazy day at the beach. But passing the test is worth it because it will get the attention of potential employers.

Opportunity for Advancement We all like to get ahead in our careers—advancement results in more responsibility and prestige, and it usually means a fatter paycheck, greater opportunities, and added options. In the IT sector, a great way to make sure all that good stuff happens is by earning a lot of technology certifications, including IT Fundamentals+ (ITF+).

Fulfillment of Training Requirements IT Fundamentals+ (ITF+), because of its wide-reaching industry support, is recognized as a baseline of computer knowledge. This can potentially fulfill IT-related training requirements set forth by your company.

Customer Confidence As companies discover the CompTIA advantage, they will undoubtedly require qualified staff to achieve these certifications. Many companies outsource their work to consulting firms with experience working with security. Firms that have certified staff have a definite advantage over firms that don't.

Fundamentals+ (ITF+) exam. But in addition to studying the book, it's a good idea to practice on actual computers if you can.

Here's a list of the 11 chapters in this book:

Chapter 1, "Core Hardware Components" This chapter introduces you to the core insides of a computer, specifically motherboards, processors, memory, storage, expansion slots, power, and cooling systems.

Chapter 2, "Peripherals and Connectors" While core hardware is important, users can truly customize their computer experience by adding peripheral hardware. To connect all of those toys to your system, you need to know which connectors to use, and this chapter teaches you all of that.

Chapter 3, "Computing Devices and the Internet of Things" Now that you've learned about all of the individual hardware components, how do they all work together? This chapter discusses features of servers, workstations, laptops, tablets, smartphones, and gaming consoles. It also introduces the Internet of Things (IoT), which can turn practically anything into a device.

Chapter 4, "Operating Systems" Without an operating system, computer hardware makes a pretty good doorstop. The operating system is the most critical piece of software on a computer, because it coordinates the efforts of the hardware and provides an interface for the user to interact with the machine.

Chapter 5, "Software Applications" This chapter covers a variety of common application types that reside on computers, such as productivity software, collaboration software, business software, anti-malware utilities, and web browsers. It also teaches you about application design concepts, software management, and the proper ways to install, uninstall, and manage applications.

Chapter 6, "Software Development" Have you ever wondered how applications get created? This chapter will teach you the characteristics of several classes of programming languages. You will also see examples of code, programming logic, and organizational methods.

Chapter 7, "Database Fundamentals" Databases are a key part of computing systems today. Data is the new currency, and therefore databases are like a bank vault. This chapter walks you through database concepts and structures, and it shows you some methods to interact with databases.

Chapter 8, "Networking Concepts and Technologies" Who doesn't want to get on the Internet? Wireless networks are popular today as a method to get Internet connectivity. You'll learn about key networking technologies and how to configure a wireless router in this chapter.

Chapter 9, "Security Concepts and Threats" The downside to computers is that it seems like hackers are everywhere. This chapter will introduce you to common threats posed by would-be attackers so you know how to avoid them. It also introduces a security framework and access control concepts.

Chapter 10, "Security Best Practices" This chapter builds on Chapter 9 by showing you how to set up your system to protect it against attacks. You will learn about hardening devices, managing users, and using data encryption.

Chapter 11, "Business Continuity and Computer Support" Inevitably, computers will run into problems—it's the nature of electronic components. This chapter will show you how to troubleshoot any issues that pop up. *Warning*: After reading this chapter, all of your family members will call on you for technical support (if they don't already)! This chapter also shows you how to plan for eventual computer problems so that you don't totally lose your data.

Exam Objectives

Speaking of objectives, you're probably pretty curious about them, right? CompTIA asked groups of IT professionals to fill out a survey rating the skills they felt were important in their jobs, and the results were grouped into objectives for the exam and divided into six domains.

This table gives you the extent by percentage in which each domain is represented on the actual examination.

Domain	% of Examination
1.0 IT Concepts and Terminology	17%
2.0 Infrastructure	22%
3.0 Applications and Software	18%
4.0 Software Development	12%
5.0 Database Fundamentals	11%
6.0 Security	20%
Total	100%

. Exam objectives are subject to change at any time without prior notice and at CompTIA's sole discretion. Please visit CompTIA's website (www.comptia.org) for the most current listing of exam objectives.

CompTIA IT Fundamentals+ (ITF+) Study Guide FC0-U61 Exam Objectives

Objective	Chapter
1.0 IT Concepts and Terminology	
1.1 Compare and contrast notational systems.	6
1.2 Compare and contrast fundamental data types and their	6

characteristics.	
1.3 Illustrate the basics of computing and processing.	1
1.4 Explain the value of data and information.	9
1.5 Compare and contrast common units of measure.	1, 2
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Assessment Test

1. Which of the following optical discs will store the most data?
   A. CD-ROM
   B. DVD-ROM DL
   C. DVD-ROM DS
   D. RS-ROM
2. Which of the following devices are used for persistent user data storage in a computer? (Choose two.)
   A. HDD
   B. RAM
   C. ROM
   D. SSD
3. Which of the following on your computer is considered firmware?
   A. RAM
   B. SSD
   C. CMOS
   D. BIOS
4. What was the first widely adopted video connector standard?
   A. CGA
   B. VGA
   C. XGA
   D. DVI
5. What type of removable storage is often used in digital cameras?
   A. Flash drive
   B. NAS

C. Memory card

D. Mobile media card

6. Which of the following peripherals is considered an input device?

A. Scanner

B. Printer

C. Touchscreen

D. Flash drive

7. Angela has an iPhone with a biometric scanner enabled. She powered the device off and just turned it back on. What methods can she use to unlock her phone?

A. Fingerprint only

B. Passcode only

C. Fingerprint or passcode

D. Fingerprint, passcode, or iris scan

8. You are setting up a new Wi-Fi connection on your iPad. What is the first step in the process?

A. Enter wireless password

B. Verify Internet connection

C. Verify wireless capabilities

D. Locate SSID

E. Turn on Wi-Fi

9. What type of security is involved when pairing two Bluetooth devices together?

A. SSL certificates are exchanged.

B. A PIN is provided by the Bluetooth device.

C. The Bluetooth security layer negotiates the security mechanism.

D. There is no security involved.

10. Which operating system named its versions after large cats?
    A. iOS
    B. OS X
    C. Android
    D. Chrome OS
11. Your computer has a 64-bit CPU. Which statement is true regarding which operating systems you can install on it?
    A. 64-bit operating systems only
    B. 64-bit or 32-bit operating systems
    C. 32-bit operating systems only
    D. It depends on how much RAM is in your system.
12. Which type of operating system allows you to run multiple operating systems at once on one computer?
    A. Embedded OS
    B. Server OS
    C. Hypervisor
    D. Mobile device OS
13. Which of the following is not considered productivity software?
    A. Spreadsheet software
    B. Web browser
    C. Online workspace
    D. Visual diagramming software
14. Which of the following is required for a website to show up as a secure website in a browser?
    A. Private browsing
    B. Client-side scripting
    C. Valid certificate

D. Compatible browser

15. Which of the following terms best describes an application with separate database, business logic, and application layers?

A. N-tier

B. Cloud hosted

C. Local network hosted

D. Three tier

16. Which data type exists only in true and false states?

A. Binary

B. Boolean

C. Char

D. Float

17. Code that is not part of the functionality of the program but is intended to be easy for people to read is called what?

A. Compiled

B. Interpreted

C. Commented

D. Pseudocode

18. Which of the following container types has a fixed length?

A. Constant

B. Array

C. Vector

D. String

19. When creating a relational database, what is the name of the rules and structure?

A. Forms

B. Tables

C. Schema

D. Constraints

20. Which of the following statements is true regarding a foreign key in a relational database?

A. They are required.

B. There can be only one per table.

C. They are automatically indexed.

D. Null values are allowed.

21. David, a database administrator, needs to remove a column from an existing database. Which command should he use?

A. `ALTER`

B. `DELETE`

C. `DROP`

D. `REMOVE`

22. You open your web browser and type in www.google.com, but your computer can't find the website. Your neighbor's computer finds it just fine. What is most likely the cause?

A. Incorrect DNS configuration

B. Incorrect DHCP configuration

C. Incorrect WPA2 configuration

D. The website is down.

23. Your friend Marcos asks you which of the following are the most secure. What do you tell him?

A. 802.11n

B. Infrared

C. Fiber-optic

D. UTP

24. Your need to set up a wireless router for a friend. He wants to be

sure that his network is secure. Which wireless security method should you implement?

A. WPA2

B. WPA

C. NAT

D. WEP

25. You have just created a new logo for your company. What should you get to protect the intellectual property?

A. Trademark

B. Copyright

C. Patent

D. Asset protection

26. A user has been accused of hacking into a server. Which of the following would keep him from denying that he did it?

A. Authentication

B. Authorization

C. Accounting

D. Nonrepudiation

27. Your manager read about a replay attack and is worried a hacker will try to use it on your network. What type of concern is this?

A. Confidentiality

B. Integrity

C. Availability

D. Authentication

28. Which of the following are considered device-hardening techniques? (Choose two.)

A. Disabling Bluetooth

B. Requiring complex passwords

C. Enabling single sign-on

D. Installing antispyware software

29. For security purposes, which of the following user accounts are disabled by default?

A. Guest

B. Users

C. Power Users

D. Administrator

30. You are browsing the Internet to purchase a gift for a friend. What two things should you look for to ensure that it's safe to enter your credit card information? (Choose two.)

A. Security seal of approval

B. RSA Secure Access symbol

C. A lock symbol

D. HTTPS://

31. You just installed a new HP printer on your Dell computer and it's not printing. What is the first source to check for information on the problem?

A. Dell's website

B. HP's website

C. Google search

D. Internet technical community groups

32. When configuring a backup solution for your computer, you decide that speed is the most important factor. Which storage option should you choose?

A. Locally attached storage

B. Network attached storage

C. Cloud storage

D. Offline storage

3. You have just completed a backup of your PC onto an optical disc. What is the next step you need to take?

A. Store the backup in a secure location.

B. Burn the disc to ensure the data is saved.

C. Test the backup to verify it works.

D. Copy the backup data to a cloud.

Answers to the Assessment Test

1. C. A double-sided DVD-ROM can store more data than a dual-layer DVD-ROM, and both can store much more than a CD-ROM. There is no RS-ROM. See Chapter 1 for more information.
2. A, D. Hard disk drives (HDDs) are used to store user data in a persistent manner, meaning that data is retained after the power is turned off. Solid-state drives (SSDs) are one type of hard drive. See Chapter 1 for more information.
3. D. The basic input output system (BIOS) is firmware. It's stored on a hardware chip called the CMOS. See Chapter 1 for more information.
4. B. VGA was the first widely used video connector standard, and it was released in 1987. See Chapter 2 for more information.
5. C. Digital cameras use memory cards. The most popular form of memory card on the market today is the SD card. See Chapter 2 for more information.
6. A. Scanners are input devices. Printers produce output. Touchscreens and flash drives are both input and output devices. See Chapter 2 for more information.
7. B. With biometrics enabled, you can use either the passcode or your fingerprint to access a locked device. However, if it was just powered off, the only option is to enter the passcode. See Chapter 3 for more information.
8. C. The proper steps in order are to verify wireless capabilities, turn on Wi-Fi, locate SSID, enter wireless password, and verify Internet connection. See Chapter 3 for more information.
9. B. When pairing two Bluetooth devices, you need to enter the PIN into your mobile device that allows it to connect to the Bluetooth device. See Chapter 3 for more information.
0. B. Apple's OS X was named for large cats. Now versions are named

after locations in California. See Chapter 4 for more information.

11. B. A 64-bit processor can handle 32-bit or 64-bit OSs. It is a waste of power to use a 32-bit OS on it, but it will work. See Chapter 4 for more information.
12. C. A hypervisor is a program that allows you to run a virtual operating system within another operating system. See Chapter 4 for more information.
13. C. Online workspace is an example of collaboration software. See Chapter 5 for more information.
14. C. Secure websites are required to have a valid security certificate. See Chapter 5 for more information.
15. D. A three-tier application will have separate database, business logic, and application layers. Three tier is a specific type of n-tier application architecture model. See Chapter 5 for more information.
16. B. The Boolean data type uses only true and false. Oftentimes they are represented with a 1 for True and a 0 for False, but this does not have to be the case. See Chapter 6 for more information.
17. D. Pseudocode is used for annotation, and it does not affect the functionality of the program. See Chapter 6 for more information.
18. B. Arrays and vectors are the two container types. Arrays have a fixed length, and vectors can have a dynamically allocated length. See Chapter 6 for more information.
19. C. The schema is the rules and structure of a relational database. See Chapter 7 for more information.
20. D. A foreign key is one or more columns in a table that refers to the primary key in another table. Unlike primary keys, null values are allowed. Foreign keys are not required, there can be more than one per table, and they are not automatically indexed. See Chapter 7 for more information.
21. A. The `ALTER` command is used to add, remove, or modify columns in a database. `DROP` is used to remove a table or database. `DELETE` is

used to delete a record, and there is no `REMOVE` command. See Chapter 7 for more information.

12. A. DNS servers resolve host names to IP addresses. It's possible that your computer has the wrong address for the DNS server. DHCP automatically configures TCP/IP clients, and WPA2 is a security protocol. If the website was down, your neighbor would not be able to access it either. See Chapter 8 for more information.

13. C. Wired connections are more secure than wireless ones. Fiber-optic cable is also immune to wiretaps, which makes it more secure than UTP. See Chapter 8 for more information.

14. A. WPA2 is the most secure wireless security protocol in use today. See Chapter 8 for more information.

15. A. A trademark is used to protect a word, words, or a symbol legally registered as representing a company or a product. See Chapter 9 for more information.

16. D. The framework for access control is AAA—authentication, authorization, and accounting. Nonrepudiation is added, which makes it so people can't deny that an event took place. See Chapter 9 for more information.

17. B. A replay attack is an example of an integrity concern. Other examples are man-in-the-middle attacks, impersonation, and unauthorized information alteration. See Chapter 9 for more information.

18. A, D. Device hardening makes it harder for attackers to gain access to your system by reducing the potential areas of attack. Two examples of device hardening are disabling unused or unneeded services and installing anti-malware. See Chapter 10 for more information.

19. A. The Guest account is disabled by default, and it should remain disabled if it is not being used. See Chapter 10 for more information.

20. C, D. Secure websites will start with `HTTPS://` instead of `HTTP://`. In addition, there will be a lock symbol near the address in the

address bar. See Chapter 10 for more information.

31. B. Always check the manufacturer's website first. Since it's an HP printer, check its site and not Dell's. See Chapter 11 for more information.

32. A. When choosing a backup solution, know that locally attached storage devices will always be faster than network storage or cloud-based solutions. See Chapter 11 for more information.

33. C. After completing a backup, you should verify that the backup is working properly. See Chapter 11 for more information.