

IC3 Internet and Computing Core Certification Guide



COMP~A Summary

Lesson 1: Computers All Around Us

Objective: Compare and contrast different types of computers, including, personal computers, laptops and PDAs.

Desktop Computers

Desktop computers are also called personal computers and sit on, or beside, or under a desk. These process data quickly and are typically used in small businesses and school. Generally two types of personal computer: PC and MAC.

Notebooks or Laptop Computers

A notebook or laptop computers can be similar to desktop models in term of speed, performance and usage. Some of advantages:

- ✓ Portability.
- ✓ Power consumption considered “greener” alternative.
- ✓ Can purchase accessories to enhance enjoyment and experience.

Netbook

A netbook is similar to a notebook. It designed to handle wireless communications or access to Internet only.

Tablets

These computers look similar to a notebook but the screen can swivel or fold over and uses touch screen capability for data entry

Hand-held or Mobile Computers :

Any computing device that fit within the palm of your hand example:

Cellular phones:

More sophisticated and can include:

- ✓ playing and listening to music
- ✓ taking pictures or video
- ✓ text messaging
- ✓ paging
- ✓ e-mail
- ✓ accessing the Internet

- ✓ global navigation systems (GPS)

Personal Digital Assistants (PDAs):

Have specific software helps make appointments, keep contact lists, or write notes.



PDAs

Music Players:

May also called an MP3 player or digital audio player. Provide audio and visual capabilities or access to Internet.



MP3

Game systems:

Embedded computing chip that enables individual to play interactive games with video technology.

Electronic book reader:

Special computing device designed with software program to download and view electronic copy of published work.

Calculators:

Use same type of chips in computers to perform same calculations. Computer is really very large and advanced calculator that performs tasks based on binary computations of 1 or 0.

Other types of computers:

Computers used in daily activities, such as:

- ✓ Automated Teller Machines (ATMs).
- ✓ Global Positioning Satellite (GPS).
- ✓ Robotics.
- ✓ Medical Equipment.

Lesson 2: Working with Computer Elements

Objective: Describe the main functional blocks of a computer system and how they work in sequence to process information.

System Unit

Often most important and expensive part and it are including motherboard, CPU, Types of memories and power supply).

Microprocessor chip (CPU)

It also called CPU (Central Processing Unit), which is consider as the brain of the computer and it's located on the motherboard. The speed of the processing is measured in Megahertz (MHz).

Memory

Is a holding area for data (store) and instruction while processing. It is located in the motherboard. The capacity of the Memory is measured in bytes. Computers developed using a numbering system of 1s and 0s Known as binary system.

Bit	1 byte	1Kilobyte	1Megabyte	1 Gigabyte	1 Terabyte	1 Petabyte
0 or 1	8 bits	1,024 Bytes	1,024 Kilobyte	1,024 Megabyte	1,024 Gigabyte	1,024 Terabyte

Read Only Memory (ROM) BIOS

Responsible for: Starting computer, Checking RAM, Loading operating system. Occurs only when computer first turned on or each time you restart (reboot) computer.

Random Access Memory (RAM)

Temporarily stores software program currently using and data created in program; may be referred to as system RAM. RAM is volatile.

Lesson 3: Working with Storage Systems

Objective: Describe the main functional blocks of a computer system and how they work in sequence to process information.

Working with Hard Disk Drives (HDD)

- ✓ Primary storage area for both data and programs.
- ✓ Data transfer rate (throughput) of hard drive is function of hard drive rotation speed and number of heads per surface.

Optical Writers

Types of drives include:

- ✓ **CD-ROM:** (Compact Disc Read Only Memory) or DVD-ROM drive.
- ✓ **CD-R/ DVD-R:** can write once only to blank disc, but disc can be read multiple times.
- ✓ **CD-RW/ DVD-RW:** can read and write multiple times onto same disc.
- ✓ **DVD-RAM:** similar to DVD-RW but can only be used on devices that support this format usually in the form of cartridges.

Disk	HDD	CD	DVD	Tape	Zip
Capacity	1000MB to 1GB	650M B	4.7GB to 17+GB	250MB to over 80GB	100MB and 750MB

The table shows the capacity of each disk

Lesson 4: Using Input/output Devices

Objective: Describe the main functional blocks of a computer system and how they work in sequence to process information.

What are Input / Output Devices?

Input/ Output devices enables communication between user and computer. There are three types:

Input devices:

Anything used to enter data into computer. Examples: (Scanners, Bar Code Reader, Game Controllers or Joysticks, Webcam, Remote Control, Security Devices, Keyboard, Move mouse, Trackball and Touchpad).

Output devices:

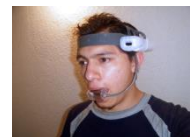
Anything used to display data on or from computer. Examples: (Projector, Photo Printer and Plotters, Monitor).

Input & output devices:

Anything used to enter and display information at the same time. Examples: (Touch Screens and Digital Cameras with a screen).

Specialized Devices:

Numerous devices available for people with physical challenges to improve ability to use computers.



Specialized Device

Device driver:

Mini-program tells operating system what kind of device it is, what make or brand it is, and its purpose.

Plug-and-play:

Automatically identifies new device connected so it looks for and installs device automatically.

Lesson 5: Basic Troubleshooting Techniques

Objective: Understand the main computer maintenance processes with troubleshooting technique.

How can you increase overall performance?

- ✓ Change microprocessor chip.
- ✓ Increase amount of RAM memory chips for system.
- ✓ Change video card and amount of RAM for video card.

There are more ways to increase your computer performance.

Taking Care of the Computer

- ✓ Refrain from eating or drinking around keyboard.
- ✓ Keep cables clear of walkways.
- ✓ Avoid connecting too many electrical devices.
- ✓ Use surge suppressor or UPS to protect from power surges, brownouts, or general fluctuations.
- ✓ File server should be in locked room with special entry access.
- ✓ Turn computer off before you move it.

Performing Basic Troubleshooting

There are many points that can increase computer performance such as:

1. **Collecting Information:** Write information down for reference.
2. **Analyzing the Information:** Analyze information for any patterns or common themes.
3. **Attempting Basic Solutions:** Try simple troubleshooting.
4. **Finding Help:** Seek help and advice from technical support specialist.
5. **Communicating the Problem Accurately:** Be accurate and concise when communicating problem.
6. **Analyzing and Selecting the Proper Action:** Provide as much detail so specialist can provide list of options.
7. **Implementing the Solution:** Follow solution provided to resolve problem
8. **Confirming the Problem is Fixed:** Try to duplicate problem to see if error occurs again

9. **Documenting and Communicating the Incident:** Document incident to use for future reference and share document with others
10. **Avoiding Similar Problems in the Future:** Documenting issue can help prevent similar problems in future

Lesson 6: Buying a Computer & Looking at Software

Objective: Identify and explain the different types of software: operating systems, application software and programming software.

Determining the Purpose:

- ✓ How will this computer be used and by whom?
- ✓ Size and type of hard drive
- ✓ Desktop or notebook or netbook?

Identifying Other Requirements:

Is it for school or organization?

Selecting the Operating Platform

Select the operating system and the applications that are needed.

Looking at Support Options:

Looking at Support Options:

- ✓ **Warranty:** it is a legal assurance that a computer will work as described in the product documentation.
- ✓ **Support agreements:** which can help extend the life of your computer for a cost that may be less than paying for each repair as need arises.
- ✓ **Extended warranties:** different from support agreement as these do not extend the life of the computer.
- ✓ **Useful life of new computer:** is considered to be a minimum of 2 to 3 years depending on how you use it and what you use it for.

Lesson 7: Looking at Software

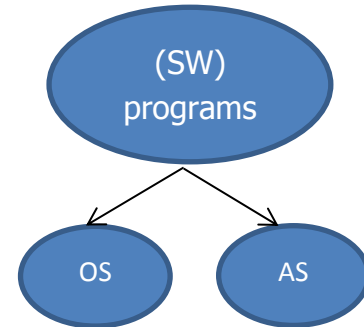
Objective: Identify and explain the different types of software: operating systems, application software and programming software.

What is a Software Program?

Refers to a set of instructions or rules that operate the computer and the other connected devices.

There are two types of software (SW) programs:

1. Operating Systems (OS)
2. Applications Software (AS)



There are many types of application software such as:

1. **Word Processing:** Can create, edit, and save documents, change appearance or position of text or pictures, review changes made by others, or remove items no longer needed. E.g. MS word, word perfect.
2. **Spreadsheets:** Perform mathematical calculations, produce “what-if” analyses, and display graphs, charts, and diagrams. E.g., Excel, Louts 1-2-3, Quattro Pro. File called workbook that can have any number of worksheets or reports.
3. **Presentations:** Create slides with any type of content for presentations E.g., power points, coral presentation.
4. **Database Management:** Organized collection of related information with following structure, E.g., Access, Paradox.
5. **Graphics:** Can obtain graphics from different sources, create your own, or customize picture files .E.g., CorelDraw, Illustrator, Visio, Photoshop, FreeHand, and Dreamweaver.
6. **Multimedia:** Add elements such as video, music, or animation E.g., Flash, Shockwave, Discreet, and Director.

7. Utility Tools

Antivirus Protection	Protects system from viruses that may corrupt files
Disk Compression	Frees space to store more files in most accessible area
Disk Cleanup	Reduces number of temporary files
Backup Protection	Schedule backups or copies of specific data should computer fail

8. **Electronic Mail:** Referred to as e-mail E.g., Outlook Express, Netscape Mail, Outlook, Eudora.
9. **Web Browsers:** Enables you to view Web sites placed online by different companies, organizations, or individuals E.g., Internet Explorer, Netscape, and Opera.
10. **Integrated Suites:** Group of programs packaged together for purchase. E.g., Microsoft Office, WordPerfect Office, Lotus smartSuit, Microsoft Works.

Obtaining Software

Software as a Service (SaaS) or Application Service Provider (ASP) licensing enables you to access and use a software program from your system via a network, the organization intranet, or the internet.

Upgrading vs. Updating:

Upgrade refers to replace of a program with newer version of the same program, but update refers to Renew for a program. Adding or renew some features in that program.

Lesson8: Operating Systems

Objective: Identify and explain the different types of software: operating systems, application software and programming software.

Looking at Operating Systems

Operating Systems Controls interaction and communication with user, Manage input devices, output devices, storage devices and Manages files stored on computer and recognizes file types.

- ✓ DOS was text-based software and required single line commands to perform functions
- ✓ GUI (Graphical User Interface) enables you to use pointing device to point and select functions.

	Windows7	Vista	Mac	Unix	Linux
Security	Less	Less	Less	More	More
GUI	With GUI	With GUI	With GUI	No GUI use Command line	GUI use Command line
Uses	Easy to use	Easy to use	Easy to use	Difficult to use because use command line	Difficult to use because use command line

- ✓ Save files using names up to 256 characters long
- ✓ If PC, cannot use (\? : < > |)
- ✓ If Mac, (:) cannot be used

Problems of OS

- ✓ Power failures
- ✓ Shutting down computer incorrectly
- ✓ Installing too much software or installing it incorrectly
- ✓ Viruses
- ✓ Conflict between software and the operating system
- ✓ Deleting system files

Lesson 9: Looking at the Windows Desktop

Objective: Demonstrate logging on and off a computer.

Exiting the Computer Properly

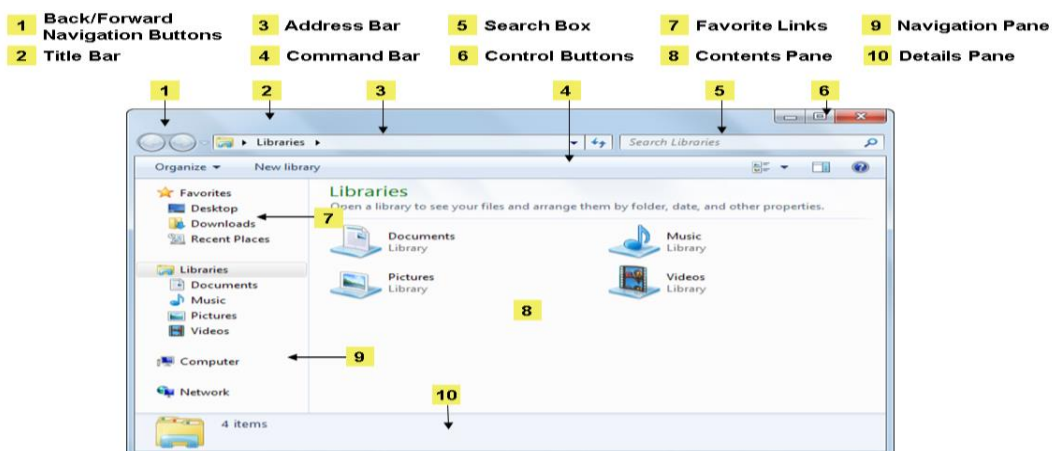
Switch user	Switches to another user account without logging out of the current account.
Log off	Closes all open items, logs out of the current user account, and returns to the log on screen.
Restart	Closes all open items and restarts the computer; also called a reboot or warm boot.
Sleep	Puts computer in state where it consumes less power without losing your place on the screen; computer does not shut down. If using desktop computer, Sleep command appears as Standby.
Hibernate	Available only on notebooks, saves what is on desktop and then shuts down the computer completely. When you restart and log on, desktop returns to where you left it.

To display Task Manager

Press **Ctrl** + **Alt** + **Delete** , or **Ctrl** + **Shift** + **Esc** then click Start Task Manager.

Task Manager: Use to switch programs, start program, check which programs running and status, or safely close program if problems occurring.

Looking at a Typical Window



Notification Area displays time with access to start up programs.

- ✓ **To activate Run:** Click Start, All Programs, Accessories, Run
- ✓ **To activate Help:** Select Help and Support from Start or Press **F1**

Lesson10: Looking at Files and Folders

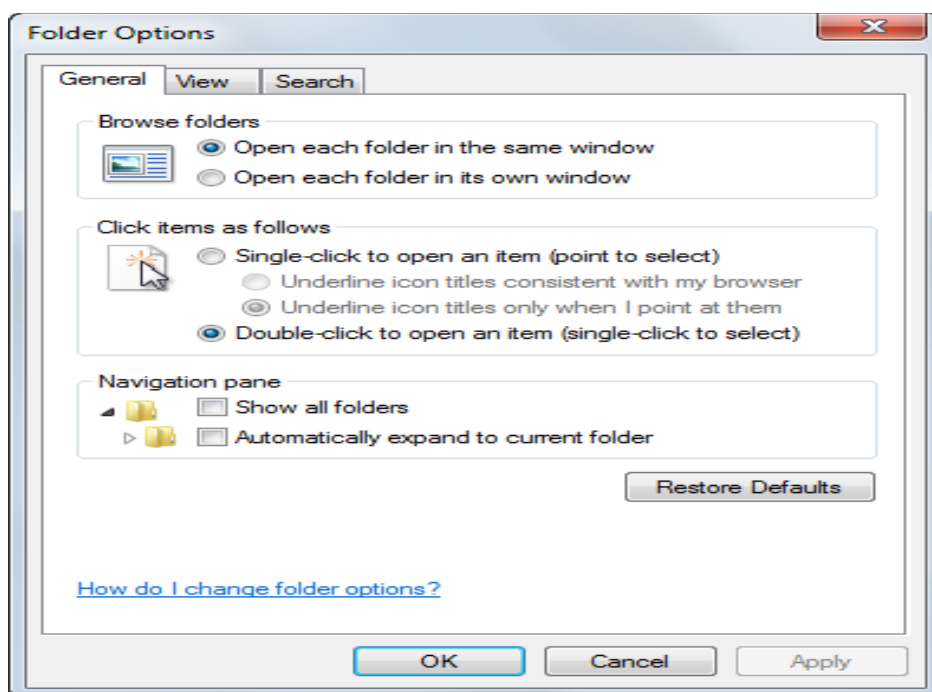
Objective: Demonstrate searching for files and folders. Understand the hierarchical structure of drives, files and folders. Understand the meaning and types of file extensions.

Types of files

- ✓ **Application File:** Includes very detailed instructions for microprocessor on what tasks to perform and Stored in program folder which resides in Program Files folder.
- ✓ **Data File:** Contains information entered and saved in application.
- ✓ **System File:** Contains detailed instructions for microprocessor on what tasks to perform, except they are part of operating system.

Navigation Pane	Displays Favorites, Libraries, and Computer or Network areas.
(Expand)	Displays more folders or items at this level; may see several buttons depending how structure set.
(Collapse)	Hide items at this level; may see several buttons based on structure set up.
Split Bar	Drag bar to show more or less of either pane.
Contents Pane	Shows contents of drive or folder selected in Folders pane.

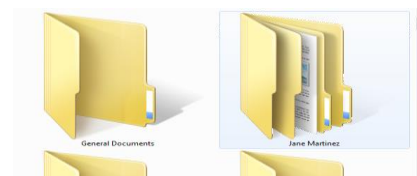
Browse folders: Specifies whether each folder opens in same window, or in different window.



Changing the View: On Command bar, click 

✓ **Extra Large Icons**

- Shows as very large icons
- File and folder names display below icon



✓ **Large Icons**

- Displays files and folders as large icons
- Helpful to preview picture files



✓ **Medium Icons**

- Displays files and folders with names below icons
- Helpful for overview of folders or files in location



Recycle Bin: Temporary storage area for files and folders you delete from local hard disk.



Sample of Review Questions

1. What is the biggest advantage of using a notebook?

- a. Cost
- b. Speed
- c. Portability
- d. Size

2. Match each term of bytes with its suitable answer:

1024 Megabytes	Choose... ▼
1024 kilobytes	Choose... ▼
1024 bytes	Choose... ▼
1024 Gigabytes	Choose... ▼

3. Which type of the following DVD drives allows you to write in a blank DVD?

(Choose 2 Answers)Select one or more:

- a. DVD-ROM
- b. DVD-RAM
- c. DVD-R
- d. DVD-RW
- e. Both DVD-RAM & DVD-ROM

4. Where can you find help or advice for fixing a problem on your computer?

- a. IT department
- b. Online sources, such as the Internet
- c. Offline sources, such as the library
- d. Any of the above
- e. a or b

5. What factors should you consider when purchasing a computer for someone who works with video files?

- a. Large Hard Drive
- b. Digital Camera

- c. Microprocessor Speed
- d. Amount of RAM

6. All of the following are examples of Graphics programs except:

Select one:

- a. Photoshop
- b. Dreamweaver
- c. CorelDraw
- d. Paradox

7. To select an item on the desktop, which mouse option would you use?

Select one:

- a. Double-click
- b. Either A or B
- c. Right-click
- d. Click

8. The most common way to start an application program is to use the Start button on the desktop.

- a. True
- b. False

9. How can you activate the Help feature?

- a. Select Help and Support from the Start menu
- b. Click a Help icon or button if it is displayed on the screen
- c. Press **F1**
- d. Any of the above

10. There is no difference between copying and moving files or folders.

- a. True
- b. False

11. How can corruption of a file occur?

- a. Virus
- b. Hardware Failure
- c. Power Surges
- d. Software Issues
- e. Any of the above
- f. b or c

12. How can you access the Control Panel?

- a. From the Start menu
- b. From a file management tool
- c. By pressing +
- d. Any of the above
- e. Only a or b

13. The Recycle Bin is a temporary storage area for files and folders that have been deleted from the hard drive.

- a.True
- b.False

14. An operating system is a collection of programs designed to control the computer's interaction and communication with the user.

- a. True
- b.False

Glossary

Word	Definition	Arabic Translation
Accessory Program	A program provided with windows vista such as windows calculator ,word Pad	اكسسوارات
Application Program	Is usually a collection of programs and data file that works together	برامج تطبيقية
ASP	Application service provider	تطبيق خدمة متوفرة
ASP	Application Service Provider .SaaS	مزود خدمة التطبيقات
Attempt	try	محاولة
backup	Reserve Version	النسخ الاحتياطي
BIOS(Basic Input/ Output System)	Small program is permanently stored in the computer's ROM	نظام الإدخال والإخراج الأساسي
Browse	View available network resources	تصفح
Buffer	a temporary memory for data	ذاكرة مؤقتة للبيانات
CD	Compact Disc	القرص المضغوط
Cellular Telephone	Mobile or handheld devices	تلفون متنقل
Chip	slap	رقاقة أو شريحة
Collapse	Make it smaller the icon	تقليص
Communication	More connections	الاتصال و التواصل
CPU	(Central Processing Unit)	وحدة المعالجة المركزية
DAT	Digital Audio Tape	شريط صوتي رقمي
Data Transfer Rate (DTR)	speed at which data can be transmitted between devices	معدل نقل البيانات
Digital	Representations of data that can be retrieved	رقمي
Disk drives	-	محركات الأقراص
DVD	digital versatile disc	القرص الرقمي متعدد الاستخدامات
Expand	Make it bigger the icon	توسيع
Gadgets	Mini program that display on the windows desktop.calander ,clock	برامج صغيرة
GPS	(Global Position Systems)	نظم الملاحة العالمية
Graphics	Illustration can be inserted into worksheet ,picture ,clip art	الرسومات
GUI	Graphic User interface	واجهة المستخدم التفاعلية
Hard disk drives	-	الأقراص الصلبة
Media player (MP3 player)	Portable media devices that are used to store music files, images, or video.	أجهزة الوسائط المحمولة التي تستخدم في تخزين ملفات الموسيقى أو الصور أو الفيديو
Operating System	A software program that controls all hard ware and application	نظام تشغيلي
Operating System	A software program that controls all hard ware and application	نظام تشغيل
Optical drives	-	محركات الأقراص الضوئية
Paging	Browsing	تصفح (الانترنت أو الكتاب الإلكتروني)
PC	(Personal Computers)	الكمبيوتر الشخصي
PDA's	(Personal Digital Assistants)	المساعد الرقمي الشخصي

Portability	Easy to carry	التنقل
RAM	(Random access Memory)	ذاكرة الوصول العشوائي
Reboot	Restart	إعادة تشغيل
Recycle Bin	A temporary storage area for deleted files	سلة المهملات
Remote Assistance	Feature enable you to request or provide help	المساعدة عن بعد
Retrieval	recover	استرجاع
ROM	(Read Only Memory)	ذاكرة القراءة فقط
Slot	gap, hole	فتحة أو منفذ
Specialized Devices	Devices designed for physically challenged user	الأجهزة المتخصصة
Task Notification Area	An area at the end of the taskbar that display ...virus ,network connections, date and time	شريط التوضيحي
Temporarily	Saved for small period of time	مؤقتا
Touch Pad	The small rectangular area on a notebook	لوحة اللمس
Trouble Shouting	Technique how the solve the problem	تصحيح الاخطاء
Volatile	inconstant	متقلب و متطاير