

Computer Competency Test Study Guide

The Virginia Community College System believes that all students should experience a teaching-learning environment that espouses computer and information literacy in accessing electronic resources and applying knowledge through technology. The VCCS endorses the principle of computer competency for all students' intent on completing a curriculum in excess of 45 semester credits.

To be considered competent, the student will:

- Be able to demonstrate a working knowledge of computing concepts, components, and operations to accomplish educational and career tasks;
- Be able to use appropriate components of an integrated productivity software package involving word processing, spreadsheet, data base, presentations, and/or communications applications;
- Be able to access, retrieve, and apply networked information resources, e.g., on-line catalog, virtual libraries, the Internet and world wide web; and
- Be able to use telecommunication software, e.g., electronic mail, listservs, bulletin boards, and/or new groups, to communicate with faculty, students, and information providers.

The Computer Competency Tests will consist of the following two parts and will take approximately 3 hours to complete:

- an objective test covering computer concepts, components, and operations
- a test that shows the student's ability to use an integrated software package; access, and retrieve information from virtual libraries, the Internet, and/or the world wide web; use telecommunications software such as electronic mail, bulletin boards, listservs, and/or newsgroups to communicate

The Computer Competency Test will be given at the following locations (Reservations Required):

- Locust Grove Campus: Testing Center, Room 207F, (540) 423-9147
- Fredericksburg Area Campus: Testing Center, Room 219, (540) 891-3021

Requirement for Taking Test:

Student must have a Germanna student email account or user name. Student must present a valid photo ID, preferably your GCC ID, to take the test.

Questions

Fall/Spring Semester	Summer Semester
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Written Test Preparation

PC Components and Specifications

The five primary components of a computer are:

1. Input devices
2. Output devices
3. Central Processing Unit or CPU
(Made up of Control Unit and Arithmetic/Logic Unit)
4. Memory
5. Storage devices



Input Devices

An input device is any hardware component that allows a user to enter data or instructions into a computer. Six commonly used input devices are the keyboard, mouse, microphone, scanner, digital camera and PC camera.

- A keyboard contains keys that allow a user to enter data and instructions into a computer.
- A mouse is a small handheld device that controls the movement of a symbol on the screen called a pointer. With the mouse, you can make choices, initiate a process and select objects.
- A microphone allows a user to speak to the computer to enter data and instructions into the computer.
- A scanner reads printed text and pictures and then translates the results into a form the computer can use.
- A digital camera allows a user to take pictures and transfer the photographed image to the computer, instead of storing on traditional film.
- A PC camera allows the users to have video telephone or conference calls – where the participants can see each other while communicating.

Output Devices

An output device is any hardware component that can convey information to a user. Three commonly used output devices are a printer, a monitor and speakers.

- A printer produces text and graphics on a physical medium such as paper or a transparency. This physical format is also referred to as a hard copy. A printer's resolution is measured in DPIs.
- A monitor which looks like a small television screen, displays text, graphics, and video information. A monitor's viewable size is the diagonal measurement of the actual viewing area.
- Speakers allow the user to hear music, voice, and other sounds generated by the computer.
- Device Connectivity
- A serial port is the interface that connects devices to the system unit by transmitting data one bit at a time. Serial ports are mainly used for devices that do not require fast data transmission rates, such as a mouse, keyboard, or modem.
- A universal serial bus (USB) port can connect up to 127 different peripheral devices with a single connector type.
- The telephone system uses wave-shaped analog signals similar to those on an oscilloscope. While your PC moves and stores data as digital signals using a series of 1's and 0's.

Central Processing Unit or CPU

The central processing unit (CPU) contains the electronic circuits that cause processing to occur. The CPU is made up of the control unit and the arithmetic/logic unit. The control unit interprets the instructions. The arithmetic/logic unit performs the logical and arithmetic processes. On personal computers, the CPU is designed into a chip called a processor. Manufacturers state clock speed (the speed at which a processor executes instructions) in megahertz (MHz) and gigahertz (GHz).

Memory

Memory, also called random access memory, or RAM, consists of electronic components that store data including numbers, letters of the alphabet, graphics, and sound. Most RAM is volatile, meaning it loses its contents when the power is removed from the computer. Any data to be processed must be stored in memory. The amount of memory is typically measured in kilobytes or megabytes. One kilobyte (K or KB) equals approximately 1,000 memory locations and one megabyte (M or MB) equals approximately one million memory locations. A memory location, or byte, usually stores one character. Therefore, a computer with 96 MB of memory can store approximately 96 million characters.

Storage Devices

Storage devices, also called auxiliary storage devices or secondary storage devices, are used to store instructions and data when they are not being used in memory. Four common types of auxiliary storage are floppy disks, hard disks, compact disks and zip disks.

- Floppy Disks
 - A floppy disk, or diskette, is a portable, inexpensive storage medium that consists of a thin, circular, flexible plastic disk with magnetic coating enclosed in a square-shaped plastic shell. The most widely used floppy disk is 3.5 inches wide and typically stores up to 1.44 megabytes of data.
 - A floppy disk is a type of magnetic disk, which means it uses magnetic patterns to store items on the disks surface. Most floppy disks that you buy are already formatted if not the disk must be formatted before it can be written to.
 - Formatting is the process of preparing a disk (floppy disk or hard disk) for reading and writing by organizing the disk into storage locations called tracks and sectors. A track is a narrow recording band that forms a full circle on the surface of the disk. The disk's storage locations then are divided into pie-shaped sections, which break the tracks into small arcs called sectors. A file that is stored in nonadjacent sectors is referred to as a fragmented file.
 - If you leave a disk in the floppy disk drive, you will see a non-system disk error message when you try to boot the PC.

- Hard Disks
 - A hard disk consists of one or more rigid metal platters that allow data to be recorded magnetically on the surface of the platters. Although some hard disks are available in a portable cartridge form, most are not removable. Like floppy disks the data is recorded on a series of tracks and the tracks are divided into sectors when the disk is formatted.
 - Storage capacities of internally mounted hard disks for PCs range from one billion characters to more than seventy-five billion characters. One billion bytes are called a gigabyte (GB). Typical hard disk sizes range from 10 GB to 75 GB.
 - A "head crash" can occur when a read/write head becomes misaligned, if the disk wobbles, or if the head runs into a stray bit of dust.



- Compact Disks
 - A compact disk (CD) is a flat, round, portable, metal storage medium. Compact discs are available in a variety of forms including CD-ROM, CD-R, CD-RW, and DVD-ROM.
- CD-ROMs
 - A CD-ROM, or compact disc read-only memory, is a compact disc that uses the same laser technology as audio CDs for recording music. In addition to audio, a CD-ROM can contain text, graphics, and video. You can only read the contents of these discs; you cannot erase or modify the contents.
 - A typical CD-ROM holds about 650 MB of data. This is about 450 times more than can be stored on a floppy disk.
- CD-R and CD-RWs
 - A CD-R (compact disc-recordable) is a multisession compact disc onto which you can record your own data, such as text, graphics, and audio.
 - A CD-RW (compact disc-rewritable) is an erasable disc you can write on multiple times. With CD-RWs, the disc acts like a floppy or hard disk allowing you to write and rewrite data onto it multiple times. Note: CD-RW technology allows you to record data on special optical disks – but many standard CD-ROM drives cannot read the data stored on these writable disks.
- DVD-ROMs

To meet the tremendous storage requirements, some software companies have moved from CD-ROMs to the larger DVD-ROM format – a technology that can be used to store large amounts of text and even videos. A DVD-ROM (digital video disc-ROM) is a very high capacity compact disc capable of storing from 4.7 GB to 17 GB of data.
- Zip Disks
 - A zip disk is a higher capacity disk that can store the equivalent of up to 170 standard floppy disks.
 - For backup purposes, a good choice of media for the home user is the higher capacity Zip Disks or CD-RWs.

Network, Internet, E-mail and Software terms

- Network
A network is a collection of computers and devices connected via communications media and devices such as cables, telephone lines, modems or other means. A network that connects computers in a limited geographic area is called a local area network (LAN). A network that covers a large geographical area is called a wide area network (WAN).
- Internet
The world's largest network is the Internet. The Internet is a worldwide collection of networks that link businesses, government agencies, educational institutions and individuals. Most users connect to the Internet one of two ways: through an Internet service provider or through Online service provider. An Internet service provider (ISP) is a business that has a permanent Internet connection and provides temporary connections to individuals and companies for free or for a fee. Like an ISP, an Online service provider (OSP) provides Internet access, but it also provides a variety of other specialized content and services. A typical Internet connection consists of a computer, a phone line, a modem, and ISP or OSP and communications software.

One of the most popular segments of the Internet is the World Wide Web, also called the Web, which contains billions of documents called Web pages. A Web site is a related collection of Web pages. You can access and view Web pages using a software program called a Web browser. A Web page has unique address, called a Uniform Resource Locator (URL). A browser retrieves a Web page by using its URL, or web address. Web page URLs begin with http://. The http stands for hypertext transfer protocol, which is the communications standard used to transfer pages to the Web. Web pages are stored and retrieved upon request by Web servers.

Netiquette, which is short for Internet etiquette, is the code of acceptable behaviors users should follow while online.

- E-mail
E-mail is the transmission of messages and files via a computer network. E-mail server software provides an electronic mailbox for each person, sorts incoming messages into these mailboxes, and routes outgoing mail over the Internet to other E-mail servers.
- Software
Freeware is software provided at no cost to a user by an individual or company. Freeware is copyrighted and cannot be resold. Public-domain software is also free, but it has been donated for public use and has no copyright restrictions. Shareware is copyrighted software that is distributed free for a trial period. A user would have to purchase the use of the shareware beyond the trial period.

Application Menu Bars and Controls

Once started, an application displays in a window on the desktop. A window is the rectangular area of the screen that displays a program, data and/or information. The top of the window has a title bar, which is the horizontal space that contains the window's name. The title bar typically contains three control buttons, the Minimize button, the Maximize button and the Close button. A scroll bar on the side of the window helps you move a document or graphic up and down within the window.



Application Test Preparation

Sample Exercises

- Microsoft Access
Create simple database tables using Access, input data into tables and produce reports displaying table data.
- Microsoft Excel
Create a simple worksheet using Excel, input data and use mathematical functions to perform calculations.
- Microsoft PowerPoint
Create a PowerPoint presentation.
- Microsoft Word
Create a document using MS Word to specifications and make revisions to the created document.
- Internet Browser
Perform research on Internet using a browser to get requested information.