

BANK PROBATIONARY GENERAL AWARENESS

COMPUTER TERMINOLOGY

Basic Terms you need to know. Computer instructions will use these terms repeatedly, and if you don't know them, you will be confused! This reference should help you know what they are talking about. Look through the list when you need a definition, some items are listed together for Mac and PC, so you may not find it under the word you are used to.

- applet**- A small Java application that is downloaded by an ActiveX or Java-enabled web browser. Once it has been downloaded, the applet will run on the user's computer. Common applets include financial calculators and web drawing programs.
- access time** - The performance of a hard drive or other storage device - how long it takes to locate a file.
- active program or window** - The application or window at the front (foreground) on the monitor.
- alert (alert box)** - a message that appears on screen, usually to tell you something went wrong.
- alias** - an icon that points to a file, folder or application.
- application**- Computer software that performs a task or set of tasks, such as word processing or drawing. Applications are also referred to as programs.
- application menu** - on the right side of the screen header. Lists running applications.
- ASCII (pronounced ask-key)** - American Standard Code for Information Interchange. a commonly used data format for exchanging information between computers or programs.
- background** - part of the multitasking capability. A program can run and perform tasks in the background while another program is being used in the foreground.
- backup** - a copy of a file or disk you make for archiving purposes.
- Bandwidth**- A range within a band of frequencies or wavelengths or the amount of data that can be transmitted in a fixed amount of time. For digital devices, the bandwidth is usually expressed in bits per second (bps) or bytes per second
- binary code** - The most basic language a computer understands, it is composed of a series of 0s and

1s. The computer interprets the code to form numbers, letters, punctuation marks, and symbols.

BIOS - BIOS stands for Basic Input/Output System and it is a low level program used by your system to interface to computer devices such as your video card, keyboard, mouse, hard drive, and other devices.

Bit - A binary unit of data storage that can only be a value of 0 or 1.

Boot - A term used to describe what happens to a computer when it is turned on, the operating system begins to run, and then the user is able to use the computer successfully.

browser - Software used to navigate the Internet. Netscape Navigator and Microsoft Internet Explorer are today's most popular browsers for accessing the World Wide Web.

bug - a programming error that causes a program to behave in an unexpected way.

bus - an electronic pathway through which data is transmitted between components in a computer.

Byte - 8 bits of data which has a possible value from 0 to 255.

card - a printed circuit board that adds some feature to a computer.

cache- (pronounced cash) A small data-memory storage area that a computer can use to instantly re-access data instead of re-reading the data from the original source, such as a hard drive. Browsers use a cache to store web pages so that the user may view them again without reconnecting to the Web.

CAD-CAM- Computer Aided Drawing-Computer Aided Manufacturing. The instructions stored in a computer that will be translated to very precise operating instructions to a robot, such as for assembling cars or laser-cutting signage.

cartridge drive - a storage device, like a hard drive, in which the medium is a cartridge that can be removed.

CD-ROM disk - A disk with about 640Mb of storage capacity which are more commonly read than written to.

CD-ROM drive - The hardware component that is used to read a CD-ROM or write to it.

Crash - A common term used to describe what happens to a computer when software errors force it to quit operating and become unresponsive to a computer user.

Chooser - A desk accessory used to select a printer, or other external device, or to log onto a network.

Clock Rate (MHz) - The instruction processing speed of a computer measured in millions of cycles per second (i.e., 200 MHz).

command (apple) key - a modifier key, the Command key used in conjunction with another keystroke to active some function on the Mac.

compiler - a program the converts programming code into a form that can be used by a computer.

compression - a technique that reduces the size of a saved file by elimination or encoding redundancies (i.e., JPEG, MPEG, LZW, etc.)

control key - seldom used modifier key on the Mac.

Cookies- information stored on your hard drive containing data about your preferences and prior visits on certain web pages. Whenever you visit a web site and it seems to "remember you", it's because of cookies. information stored on your hard drive containing data about your preferences and prior visits on certain web pages. Whenever you visit a web site and it seems to "remember you", it's because of cookies.

crash - a system malfunction in which the computer stops working and has to be restarted.

CGI - Common Gateway Interface. A programming standard that allows visitors to fill out form fields on a Web page and have that information interact with a database, possibly coming back to the user as another Web page.

CGI may also refer to Computer-Generated Imaging, the process in which sophisticated computer programs create still and animated graphics, such as special effects for movies.

chat - Typing text into a message box on a screen to engage in dialog with one or more people via the Internet or other network.

client - A single user of a network application that is operated from a server. A client/server architecture allows many people to use the same data simultaneously. The program's main component (the data) resides on a centralized server, with smaller components (user interface) on each client.

cracker- A person who breaks in to a computer

through a network, without authorization and with mischievous or destructive intent (a crime in some states).

Dat Files- Virus definition files that are necessary to keep your McAfee virus scan current and useful. Without the current dat files you are vulnerable to viruses. Short for data.

database - A collection of similar information stored in a file, such as a database of addresses. This information may be created and stored in a database management system (DBMS).

daisy chaining - the act of stringing devices together in a series (such as SCSI).

data - (the plural of datum) information processed by a computer.

defragment - (also - optimize) to concatenate fragments of data into contiguous blocks in memory or on a hard drive.

debug - To find and correct equipment defects or program malfunctions.

default - The pre-defined configuration of a system or an application. In most programs, the defaults can be changed to reflect personal preferences.

desktop publishing - The production of publication-quality documents using a personal computer in combination with text, graphics, and page layout programs.

DHCP- Dynamic Host Configuration Protocol- An IP address is automatically assigned to each computer as needed by the network administrator.

digitize - to convert linear, or analog, data into digital data which can be used by the computer.

disk - Two distinct types. The names refer to the media inside the container:

disk drive - the machinery that writes the data from a disk and/or writes data to a disk.

disk window - the window that displays the contents or directory of a disk.

DOS - acronym for Disk Operating System - used in IBM PCs.

DPI - acronym for Dots Per Inch - a gauge of visual clarity on the printed page or on the computer screen.

A hard disc stores vast amounts of data. It is usually inside the computer but can be a separate peripheral on the outside. Hard discs are made up of several rigid coated metal discs.

domain - Represents an IP (Internet Protocol) address or set of IP addresses that comprise a domain. The domain name appears in URLs to identify web pages or in email addresses.

The name of a network or computer linked to the Internet. Domains are defined by a common IP address or set of similar IP addresses.

Dongle- An adapter cable connecting a special edge-type connector (on a PCMCIA or on-board Ethernet card) to a standard RJ45 Ethernet jack.

Download, Upload- When you copy a file from another computer to your own, you're downloading. You can download files and save them to your computer and also download web pages and view them on your computer. When you copy a file from your computer and save it on another computer, you are uploading that file. Usually uploading occurs when you are creating or maintaining a web page

Driver - A specially written program which understands the operation of the device it interfaces to, such as a printer, video card, sound card or CD ROM drive. It provides an interface for the operating system to use the device.

Drop- In campus buildings, the connector box used to connect your computer to the Ethernet.

Drop-down menu - A menu window that opens vertically on-screen to display context-related options. Also called pop-up menu or pull-down menu.

DSL - Digital Subscriber Line. A method of connecting to the Internet via a phone line. A DSL connection uses copper telephone lines but is able to relay data at much higher speeds than modems and does not interfere with telephone use.

DVD - Digital Video Disc Similar to a CD-ROM, it stores and plays both audio and video.

ebook - An electronic (usually hand-held) reading device that allows a person to view digitally stored reading materials.

email - Electronic mail; messages, including memos or letters, sent electronically between networked computers that may be across the office or around the world.

emoticon - A text-based expression of emotion created from ASCII characters that mimics a facial expression when viewed with your head tilted to the left. Here are some examples::) Smiling;-(Frowning;-) Winking;_(:Crying

encryption - The process of transmitting scrambled data so that only authorized recipients can unscramble it. For instance, encryption is used to scramble credit card information when purchases are made over the Internet.

Ethernet- An Ethernet is a popular type of local-area network (LAN) that many offices use to link computers, printers, and servers.

ethernet card - A board inside a computer to which a network cable can be attached.

expansion slot - a connector inside the computer which allows one to plug in a printed circuit board that provides new or enhanced features.

extension - a startup program that runs when you start the Mac and then enhances its function.

File - A collection of data into a permanent storage structure. Stored on a permanent storage media such as a computer hard drive.

Firmware - Software written into permanent storage into the computer.

firewall - A set of security programs that protect a computer from outside interference or access via the Internet.

Firewire - Apple's AE/AA; Computer's high-speed data transfer. Frequently used to import video to a computer.

fibre channel - as applied to data storage and network topology - link to FC Glossary.

Floppy disk - A low capacity storage media which can be written to as easily as it is read.

Floppy Drive - The hardware component that is used to read or write to a floppy disk.

font - a typeface that contains the characters of an alphabet or some other letterforms.

footprint - The surface area of a desk or table which is occupied by a piece of equipment.

fragmentation - The breaking up of a file into many separate locations in memory or on a disk.

Frames- Today's Web browsers allow site builders to divide the browser window into two or more sections called frames. Each frame is filled with a distinct Web page, but the appearance is of one cohesive page. Frames can be troublesome if you are trying to bookmark or print a certain chunk of data

freeze - a system error which causes the cursor to lock in place.

freeware - Software created by people who are willing to give it away for the satisfaction of sharing or knowing they helped to simplify other people's lives. It may be freestanding software, or it may add functionality to existing software.

FTP- File transfer protocol. This is the method of moving files from one location to another over a network connection.

get info - a Finder File menu command that presents an information window for a selected file icon.

gig - a gigabyte = 1024 megabytes.

glitch - The cause of an unexpected malfunction.

Gopher - An Internet search tool that allows users to access textual information through a series of menus, or if using FTP, through downloads.

GUI- Graphical User Interface. A system that simplifies selecting computer commands by enabling the user to point to symbols or illustrations (called icons) on the computer screen with a mouse.

groupware - Software that allows networked individuals to form groups and collaborate on documents, programs, or databases.

hacker- A person with technical expertise who experiments with computer systems to determine how to develop additional features. Hackers are occasionally requested by system administrators to try and break into systems via a network to test security. The term hacker is sometimes incorrectly used interchangeably with cracker. A hacker is called a white hat and a cracker a black hat.

Hardware - Describes the physical parts of your computer which you can physically touch or see such as your monitor, case, disk drives, microprocessor and other physical parts.

hard copy - A paper printout of what you have prepared on the computer.

head crash - a hard disk crash caused by the heads coming in contact with the spinning disk(s).

high density disk - a 1.4 MB floppy disk.

highlight - to select by clicking once on an icon or by highlighting text in a document.

home page - The main page of a Web site used to greet visitors, provide information about the site, or to direct the viewer to other pages on the site.

HTML - HyperText Markup Language. A standard of text markup conventions used for documents on the World Wide Web. Browsers interpret the codes to give the text structure and formatting (such as bold, blue, or italic).

HTTP - Hypertext Transfer Protocol. A common system used to request and send HTML documents on the World Wide Web. It is the first portion of all URL addresses on the World Wide Web.

HTTPS - Hypertext Transfer Protocol Secure. Often used in intracompany internet sites. Passwords are required to gain access.

hyperlink - Text or an image that is connected by hypertext coding to a different location. By selecting the text or image with a mouse, the computer jumps to (or displays) the linked text.

hypermedia - Integrates audio, graphics, and/or video through links embedded in the main program.

hypertext - A system for organizing text through links, as opposed to a menu-driven hierarchy such as Gopher. Most Web pages include hypertext links to other pages at that site, or to other sites on the World Wide Web.

icons - Symbols or illustrations appearing on the computer screen that indicate program files or other computer functions.

initialize - to format a disk for use in the computer; creates a new directory and arranges the tracks for the recording of data.

input - Data that goes into a computer device.

input device - A device, such as a keyboard, stylus and tablet, mouse, puck, or microphone, that allows input of information (letters, numbers, sound, video) to a computer.

insertion point - in word processing, the short flashing marker which indicates where your next typing will begin.

installer - software used to install a program on your hard drive.

instant messaging (IM) - A chat application that allows two or more people to communicate over the Internet via real-time keyed-in messages.

interface - The interconnections that allow a device, a program, or a person to interact. Hardware interfaces are the cables that connect the device to its power source and to other devices. Software interfaces allow the program to communicate with other programs (such as the operating system), and user interfaces allow the user to communicate with the program (e.g., via mouse, menu commands, icons, voice commands, etc.).

Internet - An international conglomeration of interconnected computer networks. Begun in the late 1960s, it was developed in the 1970s to allow government and university researchers to share information. The Internet is not controlled by any single group or organization. Its original focus was research and communications, but it continues to expand, offering a wide array of resources for business and home users.

interrupt button - a tool used by programmers to enter the debugging mode. The button is usually next to the reset button.

IP (Internet Protocol) address - An Internet Protocol address is a unique set of numbers used to locate another computer on a network. The format of an IP address is a 32-bit string of four numbers

separated by periods. Each number can be from 0 to 255 (i.e., 1.154.10.266). Within a closed network IP addresses may be assigned at random, however, IP addresses of web servers must be registered to avoid duplicates.

ISP - Internet Service Provider is an organization that provides the ability to connect to the internet for their customers. They also usually provide additional services such as e-mail and the ability to host web sites.

Java - An object-oriented programming language designed specifically for programs (particularly multimedia) to be used over the Internet. Java allows programmers to create small programs or applications (applets) to enhance Web sites.

Javascript/ECMA script - A programming language used almost exclusively to manipulate content on a web page. Common Javascript functions include validating forms on a web page, creating dynamic page navigation menus, and image rollovers.

keyboard shortcut - a combination of keystrokes that performs some function otherwise found in a pulldown menu.

landscape- in printing from a computer, to print sideways on the page.

laptop and notebook - Small, lightweight, portable battery-powered computers that can fit onto your lap. They each have a thin, flat, liquid crystal display screen.

LDAP- Lightweight Directory Access Protocol is a software protocol for accessing information directories. Useful when trying to include the contents of the x500 directory in your e-mail client.

Linux - A UNIXxAE;-like, open-source operating system developed primarily by Linus Torvalds. Linux is free and runs on many platforms, including both PCs and Macintoshes. Linux is an open-source operating system, meaning that the source code of the operating system is freely available to the public. Programmers may redistribute and modify the code, as long as they don't collect royalties on their work or deny access to their code. Since development is not restricted to a single corporation more programmers can debug and improve the source code faster..

macro - A script that operates a series of commands to perform a function. It is set up to automate repetitive tasks.

Mac OS - An operating system with a graphical user

interface, developed by ApplexAE; for MacintoshxAE; computers. Current System X.1 (10) combines the traditional Mac interface with a strong underlying UNIXxAE; operating system for increased performance and stability.

Mailer Daemon- Daemon is a general term for server processes. The mailer daemon is a server process that handles sending and receiving mail (i.e., the SMTP server).

Measurements (summary) -

a bit = one binary digit (1 or 0)

"bit" is derived from the contraction b'it (binary digit) -> 8 bits = one byte

1024 bytes = one kilobyte

K = kilobyte

Kb = kilobit

MB = megabyte- 1024 kilobytes

Mb = megabit

MB/s = megabytes per second

Mb/s = megabits per second

bps = bits per second

i.e., 155 Mb/s = 19.38 MB/s

memory - Temporary storage for information, including applications and documents. The information must be stored to a permanent device, such as a hard disc or CD-ROM before the power is turned off, or the information will be lost. Computer memory is measured in terms of the amount of information it can store, commonly in megabytes or gigabytes.

menu - a list of program commands listed by topic

merge - To combine two or more files into a single file.

MHz - An abbreviation for Megahertz, or one million hertz. One MHz represents one million clock cycles per second and is the measure of a computer microprocessor's speed. For example, a microprocessor that runs at 300 MHz executes 300 million cycles per second. Each instruction a computer receives takes a fixed number of clock cycles to carry out, therefore the more cycles a computer can execute per second, the faster its programs run. Megahertz is also a unit of measure for bandwidth.

microprocessor - A complete central processing unit (CPU) contained on a single silicon chip.

MIME - multipurpose internet mail extension

minimize - A term used in a GUI operating system that uses windows. It refers to reducing a window to an icon, or a label at the bottom of the screen, allowing another window to be viewed.

modem - A device that connects two computers

together over a telephone or cable line by converting the computer's data into an audio signal. Modem is a contraction for the process it performs: modulate-demodulate.

monitor - A video display terminal.

mouse - A small hand-held device, similar to a trackball, used to control the position of the cursor on the video display; movements of the mouse on a desktop correspond to movements of the cursor on the screen.

MP3 - Compact audio and video file format. The small size of the files makes them easy to download and e-mail. Format used in portable playback devices.

multimedia - Software programs that combine text and graphics with sound, video, and animation. A multimedia PC contains the hardware to support these capabilities.

MS-DOS - An early operating system developed by Microsoft Corporation (Microsoft Disc Operating System).

nanosecond - one billionth of a second. (or, the time between the theatrical release of a Dudley Moore film and the moment it begins to play on air-planes).

native mode - using the computers original operating system; most commonly used when talking about the PowerPC can run software written for either the 80x0 systems, or the PowerPC's RISC code.

Network - A general term describing to the cables and electronic components that carry data between computers. It is also generally used to refer to the server computers that provide services such as printing, file sharing, e-mail, and other services.

Newsgroups, Usenet - Newsgroups, sometimes called Usenet, are public discussions posted for anyone who is interested in reading them. While similar in appearance to e-mail, newsgroups are messages that are posted to all members of the group and not addressed to an individual person.

NuBus - expansion slots on the Mac which accept intelligent, self-configuring boards. NuBus is a different bus architecture than the newer PCI bus and the boards are not interchangeable.

open source - Computer programs whose original source code was revealed to the general public so that it could be developed openly. Software licensed as open source can be freely changed or adapted to new uses, meaning that the source code of the operating system is freely available

to the public. Programmers may redistribute and modify the code, as long as they don't collect royalties on their work or deny access to their code. Since development is not restricted to a single corporation more programmers can debug and improve the source code faster.

operating system - A set of instructions that tell a computer on how to operate when it is turned on. It sets up a filing system to store files and tells the computer how to display information on a video display. Most PC operating systems are DOS (disc operated system) systems, meaning the instructions are stored on a disc (as opposed to being originally stored in the microprocessors of the computer). Other well-known operating systems include UNIX, Linux, Macintosh, and Windows.

optical disk - a high-capacity storage medium that is read by a laser light.

output - Data that come out of a computer device. For example, information displayed on the monitor, sound from the speakers, and information printed to paper.

palm - A hand-held computer.

Parallel - A data transmission method where data is sent on more than one line at a time. This may be any number of bits at a time, but is usually one word at a time (two bytes) or possibly three bytes at a time.

partition - a subdivision of a hard drives surface that is defined and used as a separate drive.

PC - acronym for personal computer, commonly used to refer to an IBM or IBM clone computer which uses DOS.

PCI - acronym for Peripheral Component Interchange - the newer, faster bus architecture.

PDA - Personal Digital Assistant. A hand-held computer that can store daily appointments, phone numbers, addresses, and other important information. Most PDAs link to a desktop or laptop computer to download or upload information.

PDF - Portable Document Format. A format presented by Adobe Acrobat that allows documents to be shared over a variety of operating systems. Documents can contain words and pictures and be formatted to have electronic links to other parts of the document or to places on the web.

peripheral - Any external device attached to a computer to enhance operation. Examples include external hard drive, scanner, printer, speakers,

keyboard, mouse, trackball, stylus and tablet, and joystick.

petabyte - A measure of memory or storage capacity and is approximately a thousand terabytes.

petaflop - A theoretical measure of a computer's speed and can be expressed as a thousand-trillion floating-point operations per second.

point - (1/72") 12 points = one pica in printing.

pop-up menu - any menu that does not appear at the top of the screen in the menu bar. (may pop up or down)

Power PC - a processing chip designed by Apple, IBM and Motorola (RISC based).

Power Mac - a family of Macs built around the PowerPC chip.

print spooler - a program that stores documents to be printed on the hard drive, thereby freeing the memory up and allowing other functions to be performed while printing goes on in the background.

Protocols - A standard method used for communications or other internet and network functions.

Plug-in - a subordinate application to your internet browser that allows for more specialized content to be displayed or otherwise dealt with. Flash, Quick Time, Real Player, and Adobe Acrobat Reader are all Plug-ins

plug and play - Computer hardware or peripherals that come set up with necessary software so that when attached to a computer, they are recognized by the computer and are ready to use.

pop-up menu - A menu window that opens vertically or horizontally on-screen to display context-related options. Also called drop-down menu or pull-down menu.

Power PC - A competitor of the Pentium chip. It is a new generation of powerful sophisticated microprocessors produced from an Apple-IBM-Motorola alliance.

program - A precise series of instructions written in a computer language that tells the computer what to do and how to do it. Programs are also called software or applications.

programming language - A series of instructions written by a programmer according to a given set of rules or conventions (syntax). High-level programming languages are independent of the device on which the application (or program) will eventually run; low-level languages are specific to each program or platform. Programming language instructions are converted into

programs in language specific to a particular machine or operating system (machine language) so that the computer can interpret and carry out the instructions. Some common programming languages are BASIC, C, C++, dBASE, FORTRAN, and Perl.

Proxy - A software agent that acts on behalf of a user as a bridge over secure networks by authenticating your identity and then helping you to access the server.

puck - An input device, like a mouse. It has a magnifying glass with crosshairs on the front of it that allows the operator to position it precisely when tracing a drawing for use with CAD-CAM software.

pull-down menu - A menu window that opens vertically on-screen to display context-related options. Also called drop-down menu or pop-up menu.

Pulse - name of the web server for the main Tulane web site and faculty and staff websites.

push technology - Internet tool that delivers specific information directly to a user's desktop, eliminating the need to surf for it. PointCast, which delivers news in user-defined categories, is a popular example of this technology.

QuickTime - the Apple system extension that gives one the ability to compress, edit and play animation, movies and sound on the Mac.

Radio Button - a graphical way to force a user to make only one selection from a list of options. Radio buttons are represented by a group of small circles. When you click on one of them, you get a dot on your selection. There is always a default selection.

RAID - Redundant Array of Inexpensive Disks. A method of spreading information across several disks set up to act as a unit, using two different techniques:

Disk striping: storing a bit of information across several discs (instead of storing it all on one disc and hoping that the disc doesn't crash).

Disk mirroring: simultaneously storing a copy of information on another disc so that the information can be recovered if the main disc crashes.

Reboot - To restart a computer. It comes from "boot," which is a term that means starting the operating system on the computer. When your computer starts going haywire, your first course of action should be to reboot.

reset switch - a switch on the Mac that restarts the computer in the event of a crash or freeze.

resize box - the small square at the lower right corner of a window which, when dragged, resizes the window.

RISC - acronym for Reduced Instruction Set Computing; the smaller set of commands used by the PowerPC and Power Mac.

Rj45 Cable- proper name for the wire or cable used to connect your computer to the ethernet.

Router- A device that bridges an internal network to another network. Take a ferry as an example: cars that need to go to the other side of a body of water (another network) need to use the ferry (the router). If they want to stay on their side, they simply don't go on the ferry. Also a device used to bridge a computer to a long distance digital communications network, such as ISDN.

Rs6000- The name commonly used to refer to the server cluster at Tulane. The RS/6000 complex is comprised of six IBM spnodes in an SP2, each of which use the Reduced Instruction Set Computer (RISC) architecture. Each node offers multi-user, multi-tasking capabilities for numerically-intensive scientific applications, graphics engineering applications, and input/output (I/O)-intensive applications. The RS/6000s' operating systems are AIX, which is IBM's implementation of UNIX System V Release 3. It's compatible with Berkeley Software Distribution (BSD) 4.3 and conforms to the IEEE Portable Operating System for Computer Environments (POSIX) Systems Application Programming interface. It implements the C, Bourne, and Korn command shells. On Tulane's RS/6000 Complex the C shell is the default. For a more detailed explanation, click here.

Rs6000 account- Tulane Technology account on the rs6000 cluster. This account will allow you access to e-mail, dial in to the Tulane server from off campus, allow you to apply for a Blackboard account, access storage space on the rs6000, and serve as the backbone for your computing career at Tulane. In general when you see any mention of logon or user name, you'll want to enter your rs6000 user name.

root directory - the main hard drive window.

Safe Mode - This is a Windows 95 mode that is automatically loaded if Windows crashes during boot up. You can access Safe Mode anytime if you press the "F8" key when the screen says "loading Windows." This will bring you to a menu

that allows you to boot into safe mode. Safe Mode is a special mode of Windows that loads with minimal driver support. The purpose of it is to help resolve boot problems. For example, if you install the wrong graphics driver, Windows crashes when it's loading. When you restart Windows, it will boot into Safe Mode and use the standard VGA driver with 60 Hz refresh rate. This will allow you to go to the Display Properties function and switch the video driver back to something that works. There is no reason to go into Safe Mode unless you are crashing during boot up or you are trying to diagnose a driver problem.

save - to write a file onto a disk.

save as - (a File menu item) to save a previously saved file in a new location and/or with a new name.

Scroll- Moving up or down within a document in your screen by clicking on the directional arrows found on the right side and bottom of the active window.

scroll bar - a bar at the bottom or right side of a window that contains the scroll box and allows scrolling.

scroll box - the box in a scroll bar that is used to navigate through a window.

SCSI address - a number between zero and seven that must be unique to each device in a SCSI chain. Fast and Wide SCSI devices will allow up to 15 SCSI Ids (hexidecimal); however, the length restriction (3 meters) is such that it is virtually impossible to link 15 devices together.

SCSI terminator - a device placed at the end of a SCSI chain to complete the circuit. (some SCSI devices are self-terminating, or have active termination and do not require this plug).

Secure Sockets Layer (SSL) - This is a protocol specified by Netscape that allows for "secure" passage of data. It uses public key encryption, including digital certificates and digital signatures, to pass data between a browser and a server. It is an open standard and is supported by Netscape's Navigator and Microsoft's Internet Explorer.

search engine - Software that makes it possible to look for and retrieve material on the Internet, particularly the Web. Some popular search engines are Alta Vista, Google, HotBot, Yahoo!, Web Crawler, and Lycos.

Security flaw - A software bug allowing an attacker a method to gain unauthorized access to a system.

Serial - A data transmission method where data is sent on a single line and one bit is sent at a time. This is similar to a line which one item must come one after another

Software - Describes the programs that run on your system.

SPAM - A term used to describe junk and unsolicited e-mail.

Storage Media - A term used to describe any magnetic device that computer data can be permanently stored on such as a hard drive or floppy drive.

shareware - Software created by people who are willing to sell it at low cost or no cost for the gratification of sharing. It may be freestanding software, or it may add functionality to existing software.

Site License - Usually, software manufacturers will sell their software based on the amount of users using the software. As the amount of users increases, and prices get higher, software manufacturers will sometimes sell a site license that entitles an entire site to use as many licenses as they need to at a particular location for a single price. This makes management of a large amount of licenses unnecessary and simplifies things for the customer and the software vendor. For example, one company may have a 1-user, 5-user, 10-user, 25-user and finally a site-license version of their software. The site license will be the most expensive, but may be more economical if you have a large amount of users.

Spam- unsolicited junk e-mail. Spammers will often offer you the option of removing yourself from their e-mailing list. But more often than not they use non-functioning return e-mail addresses or anonymous remailers so it's difficult to successfully unsubscribe from their lists (though recent legislation has been passed outlawing this behavior). However you're not helpless: Tools like e-mail filters and a spam-abuse hotline (spam.abuse.net) do provide help for dealing with spam.

System Tray- The system tray is the place holder on the far right of the Windows taskbar. Within it you will find the clock and other user-installed programs that monitor the system or run constantly. To see what each icon represents, simply hold your mouse pointer over an icon, or right click an icon for a menu of options.

server - a central computer dedicated to sending and receiving data from other computers (on a network).

shut down - the command from the Special menu that shuts down the Mac safely.

spider - A process search engines use to investigate new pages on a web site and collect the information that needs to be put in their indices.

SSH- Program that allows secure file transfer over a network connection.

storage - Devices used to store massive amounts of information so that it can be readily retrieved. Devices include RAID's, CD-ROMs, DVDs

Streaming - Taking packets of information (sound or visual) from the Internet and storing it in temporary files to allow it to play in continuous flow.

start up disk - the disk containing system software and is designated to be used to start the computer.

surge suppressor - a power strip that has circuits designed to reduce the effects of surge in electrical power. (not the same as a UPS)

System file - a file in the System folder that allows your Mac to start and run.

System folder - an all-important folder that contains at least the System file and the Finder.

TCP/IP- Abbreviation for Transmission Control Protocol/Internet Protocol, the suite of communications protocols used to connect hosts on the Internet.

Telnet- Telnet is a program that runs on your computer and allows you to connect to a remote host (computer). As an emulation program, the commands you enter through telnet are executed as if you were typing them directly into the host's keyboard. To prevent unauthorized people from accessing data, only folks with a valid username and password are allowed to connect.

Tucan- TUCAN is Tulane's privately owned and operated cable TV system. All students who live on the campus have a free cable television outlet in their residence hall rooms.

Uninterruptible Power Source (UPS)- a constantly charging battery pack which powers the computer. A UPS should have enough charge to power your computer for several minutes in the event of a total power failure, giving you time to save your work and safely shut down.

URL- Uniform Resource Locator is the term used to describe a link which points to a location of a file

on the internet. Every single thing you see on the Web has its own distinct address, or URL. Web pages, images, scripts, and other various multimedia shenanigans all have a distinct location, which more often than not begins with "HTTP" (which stands for "hypertext transfer protocol") followed by a colon and two slashes (http://). That, in combination with the file location, www.tulane.edu/~tis, makes up a URL.

USB - Universal Serial Bus. An industry standard for connecting different compatible peripheral devices across multiple platforms. USB peripherals offer the use of plug-and-play convenience by eliminating the need to turn off or restart the computer when attaching a new peripheral. Users can connect USB peripherals whenever they need them.

Userid- usually your first initial and last name, as assigned to you by Technology Services. Also the first part of your @Tulane.edu e-mail address.

virtual memory - using part of your hard drive as though it were "RAM".

virtual reality (VR) - A technology that allows one to experience and interact with images in a simulated three-dimensional environment. For example, you could design a room in a house on your computer and actually feel that you are walking around in it even though it was never built. (The Holodeck in the science-fiction TV series Star Trek: Voyager would be the ultimate virtual reality.) Current technology requires the user to wear a special helmet, viewing goggles, gloves, and other equipment that transmits and receives information from the computer.

virus - An unauthorized piece of computer code attached to a computer program or portions of a computer system that secretly copies itself from one computer to another by shared discs and over telephone and cable lines. It can destroy information stored on the computer, and in extreme cases, can destroy operability. Computers can be protected from viruses if the operator utilizes good virus prevention software and keeps the virus definitions up to date. Most viruses are not programmed to spread themselves. They have to be sent to another computer by e-mail, sharing, or applications. The worm is an exception, because it is programmed to replicate itself by sending copies to other

computers listed in the e-mail address book in the computer. There are many kinds of viruses, for example:

Boot viruses place some of their code in the start-up disk sector to automatically execute when booting. Therefore, when an infected machine boots, the virus loads and runs.

File viruses attached to program files (files with the extension .exe). When you run the infected program, the virus code executes.

Macro viruses copy their macros to templates and/or other application document files.

Trojan Horse is a malicious, security-breaking program that is disguised as something benign such as a screen saver or game.

Worm launches an application that destroys information on your hard drive. It also sends a copy of the virus to everyone in the computer's e-mail address book.

Vulnerability - Software errors that allow some kind of unauthorized access when they are used or exploited.

Word - Two bytes or 16 bits of data with a possible unsigned value from 0 to 16535.

Worm - A term used to describe an unwanted program that uses system or application vulnerabilities to infect a computer without the user doing anything but connecting to an infected network

WORM - acronym for Write Once-Read Many; an optical disk that can only be written to once (like a CD-ROM).

World Wide Web (WWW or the Web) - A network of servers on the Internet that use hypertext-linked databases and files. It was developed in 1989 by Tim Berners-Lee, a British computer scientist, and is now the primary platform of the Internet. The feature that distinguishes the Web from other Internet applications is its ability to display graphics in addition to text.

X500- Online directory available to the Tulane community that contains e-mail and physical mailing addresses. Updated monthly via an interface with the Payroll/personnel and student information systems.

zoom box - a small square in the upper right corner of a window which, when clicked, will expand the window to fill the whole screen

MULTIPLE CHOICE QUESTIONS

1. Which of the following is the product of data processing
 - a. information
 - b. data
 - c. software program
 - d. system
2. The process of putting data into a storage location is called
 - a. reading
 - b. writing
 - c. controlling
 - d. hand shaking
3. The process of copying data from a memory location is called
 - a. reading
 - b. writing
 - c. controlling
 - d. booting
4. A list of instructions used by a computer is called
 - a. program
 - b. CPU
 - c. text
 - d. output
5. The CPU consists of
 - a. input, output and processing
 - b. control unit, primary storage and secondary storage
 - c. Control unit; arithmetic logic unit and primary storage
 - d. input, processing and storage
6. Which of the following is true about primary storage
 - a. it is a part of the CPU
 - b. It allows very fast access to data
 - c. It is relatively more expensive
 - d. all of the above
7. Which of the following is the most powerful type of the computer
 - a. main frame
 - b. super conductor
 - c. micro computer
 - d. super computer
8. Software instruction intended to satisfy a user's specific processing needs are called
 - a. system software
 - b. process software
 - c. documentation
 - d. application software
9. The computer device primarily used to provide hardcopy is the
 - a. CRT
 - b. line printer
 - c. computer console
 - d. card reader
10. Which one of the following can produce the final product of machine processing in a form usable by humans
 - a. storage
 - b. control
 - c. input device
 - d. output device
11. The term 'memory' applies to which one of the following
 - a. logic
 - b. storage
 - c. input device
 - d. output device
12. A program written in machine language is called program.
 - a. object
 - b. computer
 - c. assembler
 - d. high level
13. A source program is the program written in language.
 - a. English
 - b. symbolic
 - c. high level
 - d. object
14. A typical modern computer uses
 - a. magnetic cores for secondary storage
 - b. LSI chips
 - c. magnetic tape for primary memory
 - d. more than 10,000 vacuum tubes
15. A collection of 8 bits is called
 - a. byte
 - b. record
 - c. word
 - d. nibble
16. General purpose computers are those that can be adopted to countless uses simply by changing its
 - a. output device
 - b. input device
 - c. processor
 - d. program
17. The current generation of computers
 - a. second
 - b. fifth
 - c. fourth
 - d. third
18. The boolean expression $(A + \overline{C})(\overline{B} + \overline{C})$ simplifies to
 - a. $\overline{C} + A\overline{B}$
 - b. $\overline{C}(\overline{A} + B)$
 - c. $\overline{B}\overline{C} + \overline{A}$
 - d. None of these
19. To implement all functions of the basic logic functions, it needs
 - a. OR gate
 - b. NOT gate
 - c. AND and NOT gates
 - d. None of these
20. In the binary number 110.101, the fractional part has the value
 - a. 0.625
 - b. 0.125
 - c. 0.875
 - d. 0.5
21. The value of binary 1111 is
 - a. $2^3 - 1$
 - b. 2^4
 - c. $2^4 - 1$
 - d. None of these
22. The value of 2^5 in octal system is
 - a. 20
 - b. 40
 - c. 400
 - d. None of these
23. A hexa decimal number 'AO' has the decimal value
 - a. 80
 - b. 256
 - c. 100
 - d. 160

24. The binary representation of hexadecimal 'C3' is
a. 1111 b. 110011
c. 110001 d. 11000011
25. The ASCII code is for information interchange by a binary code for
a. numbers only b. alphabets only
c. alphanumeric and other common symbols
d. None of these
26. A four bit number is given as 1001. Its 1's complement is
a. 1001 b. 11001
c. 0110 d. 0101
27. 2's complement representation of a decimal number -4 is
a. 0100 b. 1100
c. 1011 d. 1010
28. BCD numbers are obtained
a. by converting decimal number to binary
b. by converting decimal to octal
c. when each decimal digit is represented by four bit binary
d. by converting binary to decimal.
29. A gate in which all inputs must be low to get a high output is called
a. an inverter b. a NOR gate
c. an AND gate d. a NAND gate
30. For a logical circuit there are 'n' binary inputs. Then the number of different input combinations in the truth table is
a. 2n b. 2/n
c. 2ⁿ d. 2(n+1)
31. Which of the following performs modulation and demodulation
a. Satellite b. modem
c. fiber optic d. amplifier
32. A characteristic of multiprogramming system is
a. simultaneous execution of program instructions from two applications
b. concurrent processing of two or more programs
c. multiple CPU's d. all of the above
33. Communication circuits that transmit data in both directions but not at the same time are operating in
a. simplex mode b. half-duplex mode
c. full-duplex mode d. asynchronous mode
34. Operating system functions may include
a. input/output control b. virtual storage
c. multiprogramming d. all of the above
35. Transmission of computerised data from one location to another is called
a. data transfer b. data flow
c. data communication d. datamanagement
36. Which of the following items is not used in LAN
a. computers b. modem
c. printer d. cable
37. Which is the device that converts computer output into a form that can be transmitted over a telephone line
a. teleport b. multiplexer
c. concentrator d. modem
38. What is the commonly used unit for measuring the speed of data transmission
a. bytes per second b. bits per second
c. baud d. either b or d
39. A kilobyte also referred to as KB, is equal to
a. 1000 bytes b. 1024 bytes
c. 2048 bytes d. 512 bytes
40. Inputs to your computer is accomplished using the
a. Screen b. keyboard
c. printer d. plotter
41. Which of the following is not used as secondary storage
a. Semiconductor memory
b. magnetic disks
c. magnetic drums
d. magnetic tapes
42. A collection of wires that connects several device is called
a. link b. bus
c. cable d. port
43. A offline device is
a. a device which is not connected to CPU
b. a device which is connected to CPU
c. a device which is in breakdown stage
d. None of these
44. Which of the following is the fastest
a. CPU
b. magnetic tapes and disks
c. video terminal
d. sensors, mechanical controllers
45. Memories in which any location can be reached in a fixed and short amount of time after specifying its address is called
a. sequential access memory
b. random access memory
c. secondary memory
d. mass storage

46. The register which contains the data to be written into or read out of the addressed location is known as
 - a. index register
 - b. memory address register
 - c. memory data register
 - d. program counter
47. The register which keeps track of the execution of a program and which contains the memory address of the next instruction to be executed is known as
 - a. index register
 - b. instruction register
 - c. memory address register
 - d. program counter
48. Which of the following is used as storage locations both in the ALU and in the control section of a computer
 - a. accumulator
 - b. register
 - c. adder
 - d. decoder
49. Accumulator is a
 - a. hardwired unit
 - b. sequential circuit
 - c. finite state machine
 - d. register
50. Non volatility is an important advantage of
 - a. CCDs
 - b. magnetic tapes and disks
 - c. magnetic bubbles
 - d. both b and c
51. Which of the following memory is volatile
 - a. RAM
 - b. ROM
 - c. EPROM
 - d. PROM
52. The memory which is programmed at the time it is manufactured is
 - a. ROM
 - b. RAM
 - c. PROM
 - d. EPROM
53. Which memory is non volatile and may be written only once.
 - a. RAM
 - b. EE-PROM
 - c. EPROM
 - d. PROM
54. Which of the following statements is wrong
 - a. magnetic core memory, RAMs and ROMs have constant access time
 - b. magnetic tape is non volatile
 - c. semiconductor memories are used as mass memory medium
 - d. An EPROM can be programmed, erased and reprogrammed by the user with an EPROM programming instrument
55. The fastest type of memory is
 - a. tape
 - b. semiconductor memory
 - c. disk
 - d. bubble memory
56. In magnetic disks data is organized on the platter in a concentric sets or rings called
 - a. sector
 - b. track
 - c. head
 - d. block
57. When we move from the outer most track to the innermost track in a magnetic disk, the density
 - a. increases
 - b. decreases
 - c. remains the same
 - d. either remains constant or decreases
58. Which of the following device can be used to directly input printed text
 - a. OCR
 - b. Mouse
 - c. MIC
 - d. Joystick
59. Which device can draw continuous lines
 - a. daisy wheel
 - b. plotter
 - c. chain printer
 - d. impact printer
60. In which storage device, recording is done by burning tiny pits on a circular disk
 - a. punched cards
 - b. floppy disk
 - c. magnetic tape
 - d. optical disk
61. Which of the following printers uses light beam and electrostatically sensitive black powder
 - a. dot matrix printer
 - b. daisy wheel printer
 - c. chain printer
 - d. laser printer
62. The primary purpose of an operating system is
 - a. to make the most efficient use of the computer hardware
 - b. to allow people to use the computer
 - c. to keep system programmers employed
 - d. to make computers fast.
63. The operating system manages
 - a. memory
 - b. processor
 - c. disk and I/O devices
 - d. all of the above
64. Scheduling is
 - a. allowing job to use the processor
 - b. unrelated performance considerations
 - c. quiet simple to implement, even on large main frames
 - d. the same regardless of the purpose of the system
65. Which of the following translator program converts assembly language program to object program
 - a. assembler
 - b. compiler
 - c. macroprocessor
 - d. linker
66. Multiprogramming systems
 - a. are easier to develop than single programming systems

- b. execute each job faster
c. execute more jobs in the same time period
d. use only one large mainframe computer
67. What device is used for entering x - y coordinates
a. card reader b. joystick
c. keyboard d. all of the above
68. Impact printers
a. strike a ribbon against the paper to produce character images.
b. include ink-jet and thermal devices
c. are more expensive than laser printers
d. use optical technology
69. Bar codes stores information using
a. punched holes b. dots
c. thick and thin lines d. all of the above
70. How many types of storage loops exist in magnetic bubble memory
a. 8 b. 4 c. 3 d. 2
71. In comparison to the internal (main) memory, tape or disk memory is
a. slower and more expensive
b. slower and less expensive
c. faster and more expensive
d. faster and less expensive
72. One of the main features that distinguish microprocessor from microcomputers is
a. words are usually larger in microprocessors
b. words are shorter in microprocessors
c. microprocessor doesnot contain I/O devices
d. computers are not fully integrated
73. microprocessor with 'n' address lines is capable of addressing
a. $2n$ locations b. $2^{(n+1)}$ locations
c. 2^n locations d. n^2 locations
74. Which technique is preferable for transferring a large amount of data to and from a memory in a short time
a. DMA b. Interrupt driven I/O
c. programmed I/O d. None of these
75. Boolean expression for the output of X-NOR (equivalence) logic gate with inputs A and B is
a. $A\bar{B} + \bar{A}B$ b. $\overline{AB} + AB$
c. $(A + B)(A + \bar{B})$ d. $(\bar{A} + \bar{B})(A + B)$
76. The binary representation 100110 is numerically equivalent to
a. the decimal representation 46
b. the octal representation 46
c. the hexadecimal representation 46
d. the binary representation 26
77. The Boolean expression $\bar{A}.B + A.\bar{B} + A.B$ is equivalent to
a. $A + B$ b. $\bar{A}.B$
c. $\overline{A + B}$ d. $A . B$
78. The greatest negative number which can be stored in a computer that has 8-bit wordlength and uses 2's complement arithmetic is
a. -256 b. -255 c. -128 d. -127
79. By taking 2's complement again of the 2's complement of a binary, one gets
a. the 1's complement b. the 2's complement
c. the original number
d. the sign magnitude form of the numbers
80. The expression $A(A + B)$ by writing the first term A as $A + 0$ the expression is best simplified as
a. $A + AB$ b. AB
c. A d. $A + B$
81. In the sign magnitude representation, the leading bit
a. is a part of the number itself
b. is unit for positive numbers
c. is always unit
d. stands for the sign
82. Which of the following is equivalent to the Boolean expression $Y = \bar{A}\bar{B} + \bar{B}\bar{C} + \bar{C}\bar{A}$
a. $\overline{AB + BC + CA}$
b. $(\bar{A} + \bar{B}) + (\bar{B} + \bar{C}) + (\bar{A} + \bar{C})$
c. $\overline{(A + B)(B + C)(C + A)}$
d. $(\bar{A} + \bar{B})(\bar{B} + \bar{C})(\bar{C} + \bar{A})$
83. The OSI reference model defines the function for seven layers of protocols
a. including the user and communication medium.
b. not including the user or communication medium
c. including the communication medium but not the user
d. including the user but not the communication medium
84. The OSI reference model is
a. worthless b. a protocol
c. not a protocol d. None of these
85. A data packet is a packet header together with
a. a network layer
b. an administrative layer
c. user data
d. a packet switch

86. The application layer of the OSI model is the
 - a. seventh layer
 - b. sixth layer
 - c. fifth layer
 - d. fourth layer
87. Working of the WAN generally involves
 - a. satellite
 - b. frame delay
 - c. ATM
 - d. user agent
88. Which of the following technique provides dedicated communication channel between two stations.
 - a. switch network
 - b. circuit switching
 - c. packet switching
 - d. none of these
89. End-to-end connectivity is provided from host-to-host in
 - a. network layer
 - b. session layer
 - c. data link layer
 - d. transport layer
90. Base band is
 - a. transmission of signals without modulation
 - b. a signal all of whose energy is contained within a finite frequency range.
 - c. the simultaneous transmission of data to a number of stations
 - d. all of the above
91. The simultaneous transmission of data to a number of stations is known as
 - a. broad cast
 - b. bandwidth
 - c. Aloha
 - d. analog transmission
92. The communication mode that supports data in both directions
 - a. simplex
 - b. half duplex
 - c. duplex
 - d. multiplex
93. Modulation is the process of
 - a. sending a file from one computer to another computer
 - b. converting digital signals to analog signals
 - c. converting analog signals to digital signals
 - d. echoing every character that is received
94. A distributed network configuration in which all data/information pass through a central computer is
 - a. bus network
 - b. star network
 - c. duplex
 - d. multiplex
95. To connect a computer with a device in the same room, you might be likely to use
 - a. a coaxial cable
 - b. a dedicated time
 - c. a ground station
 - d. all of the above
96. Administrative supervision of database activities is the responsibility of the
 - a. data base administrator
 - b. DP Manager
 - c. DB Manager
 - d. VP-DP administrator
97. Which of the following component of a computer system is the most important to a data base management system
 - a. mouse
 - b. high resolution video display
 - c. printer
 - d. high speed, large capacity disk
98. What is the serious problem(s) of file management systems
 - a. data redundancy
 - b. difficult to update
 - c. program dependence
 - d. All of the above
99. Which of the following contains complete record of all activity that affected the contents of a database during a certain period of time
 - a. master file
 - b. transaction file
 - c. report
 - d. query file
100. In a database, related fields are grouped to form
 - a. record
 - b. file
 - c. bank
 - d. field group
101. A table consists of
 - a. fields and columns
 - b. rows and columns
 - c. rows and cells
 - d. none of these
102. The purpose of an index is to provide to the file it is indexing
 - a. storage area
 - b. access path
 - c. name
 - d. number
103. The database environment has all of the following components except
 - a. users
 - b. separate files
 - c. database
 - d. database administrator
104. Which of the following is an advantage of the database approach
 - a. elimination of data redundancy
 - b. ability to associate related data
 - c. increased security
 - d. All of the above
105. When changes occur in a data item, if every file which contains that field should not be updated then, it leads to
 - a. data redundancy
 - b. data inconsistency
 - c. data security
 - d. data loss
106. When the same data field is stored more than once in a file, then it leads to
 - a. data redundancy
 - b. data inconsistency
 - c. data dependency
 - d. data independency
107. Data security threats include
 - a. privacy invasion
 - b. hardware failure
 - c. fraudulent manipulation of data
 - d. all of the above

108. Updating a database means
 a. revising a file structure
 b. reorganizing the database
 c. modifying or adding records
 d. all of the above
109. Firmware means
 a. software
 b. hardware
 c. software available on hardware
 d. none of these
110. For each instructions of program in memory the CPU goes through a
 a. decode - fetch - execute sequence
 b. execute - store - decode sequence
 c. fetch - decode - execute sequence
 d. fetch - execute - decode sequence
111. Which of the following is the ascending order of data hierarchy
 a. bit - byte - record - field - data base - file
 b. bit - byte - field - record - file - database
 c. bit - byte - file - field - record - database
 d. bit - record - byte - field - file - database
112. A microcomputer consists of atleast an input unit, an output unit, microprocessor unit and a
 a. stabilizer
 b. memory unit
 c. printer
 d. network
113. Magnetic tape can serve as
 a. input media
 b. output media
 c. secondary storage media
 d. all of the above
114. Super computers are mainly useful for
 a. mathematical intensive scientific applications
 b. data-retrieval operations
 c. input-output intensive processing
 d. all of the above
115. Which of the following storage is volatile
 a. semiconductor memory
 b. floppy disk
 c. CD-ROM
 d. core memory
116. RAM chips
 a. allow the computer to store data electronically
 b. store data indefinitely unless you delete it
 c. are secondary memory
 d. all of the above
117. EEPROM is
 a. easily erasable
 b. non-erasable
 c. effectively erasable
 d. electrically erasable
118. Multiprocessing
 a. makes the operating system simpler
 b. allows multiple processes to run simultaneously
 c. is completely understood by all major computer vendors
 d. allows the same computer to have multiple processors
119. How many units in a single bus structure will communicate at a time
 a. 1
 b. 2
 c. 3
 d. 14
120. Arithmetic logic unit
 I. perform arithmetic operations
 II. store data
 III. perform comparison
 IV. communicate with input devices of the above
 the correct one is
 a. I only
 b. II only
 c. I and II only
 d. I and III only

ANSWERS

- | | | | | | | | | | | |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1. a | 2. b | 3. a | 4. a | 5. c | 6. d | 7. d | 8. d | 9. b | 10. d | 11. b |
| 12. a | 13. c | 14. b | 15. a | 16. d | 17. c | 18. a | 19. c | 20. a | 21. c | 22. b |
| 23. d | 24. d | 25. c | 26. c | 27. b | 28. c | 29. b | 30. c | 31. b | 32. b | 33. b |
| 34. d | 35. c | 36. b | 37. d | 38. d | 39. b | 40. b | 41. a | 42. b | 43. a | 44. a |
| 45. b | 46. c | 47. d | 48. b | 49. d | 50. d | 51. a | 52. a | 53. d | 54. c | 55. b |
| 56. b | 57. a | 58. a | 59. b | 60. d | 61. d | 62. a | 63. d | 64. a | 65. b | 66. c |
| 67. b | 68. a | 69. c | 70. d | 71. b | 72. c | 73. c | 74. a | 75. c | 76. b | 77. a |
| 78. c | 79. c | 80. c | 81. d | 82. c | 83. b | 84. c | 85. c | 86. a | 87. a | 88. b |
| 89. d | 90. a | 91. a | 92. b | 93. b | 94. b | 95. a | 96. a | 97. d | 98. d | 99. b |
| 100. a | 101. b | 102. b | 103. b | 104. d | 105. b | 106. a | 107. d | 108. d | 109. c | 110. c |
| 111. b | 112. b | 113. d | 114. a | 115. a | 116. a | 117. d | 118. d | 119. b | 120. d | 102. b |
| 103. b | 104. d | 105. b | 106. a | 107. d | 108. d | 109. c | 110. c | 111. b | 112. b | 113. d |
| 114. a | 115. a | 116. a | 117. d | 118. d | 119. b | 120. d | | | | |