**1. What are the main types of Open Source Software (OSS) licenses? Select all answers that apply.**

**Ans:**

* Restrictive
* Permissive

**2. Linux began:**

**Ans: In 1991 with an Internet post by a student in Finland**

**3. Which method best describes the way Android is developed?**

**Ans: Company-Led**

**4. Which method best describes the way FreeBSD is developed?**

**Ans: Governing Board**

**5. Which method best describes the way Linux kernel is developed?**

**Ans: Benevolent Dictatorship**

**6. The git version control system arose from needs of which project:**

**Ans: The Linux Kernel**

**7. Which of the following are OSS projects used to construct a graphical user interface (GUI)?**

**Ans:**

* Wayland
* X Window System
* KDE
* GNOME

**8. Which of the following are projects emanating from the Free Software Foundation?**

**Ans:**

* gcc
* glibc
* gdb
* bash

**9. Which of the following are widespread fully OSS Projects (Select all that apply):**

**Ans: None of the above**

**10. Which of the following document preparation systems are OSS projects (Select all that apply):**

**Ans:**

* TeX, LaTeX and related versions
* LibreOffice

**11. From a business perspective, use of OSS (Select all answers that apply):**

**Ans:**

* Makes marketing easier as some ingredients are already well-known and trusted
* Enables use of ingredients from other sources and speeds development

**12. OSS is (Select all answers that apply):**

**Ans:**

* Secure or insecure depending on the quality and priorities of the project maintainers, but at least users can judge this by open discussion and code inspection
* Can be more secure because many developers can easily see the code, look for problems, and mitigate problems when they are discovered

**13. For school systems at any level, use of OSS (Select all answers that apply):**

**Ans:**

* Can lower costs by letting older hardware be used
* Can lower costs by letting low-cost or free software be used

**14. School systems can benefit from using OSS because (Select all answers that apply):**

**Ans:**

* Students may learn how to join projects and contribute from an early age or stage in their education
* As the world's IT infrastructure becomes more and more OSS-based, students will be better prepared to enter the work force especially as developers
* Students can more easily learn about how things really work as compared to using closed source operating systems and applications

**15. Developers working in OSS will:**

**Ans: Will often find it easier to get good jobs because their work will be more open to inspection**

**16. Continuous Integration (Select all answers that apply):**

**Ans:**

* Speeds up the development process, as builds and tests are fully automated
* Can speed development, as wrong paths can be discovered before they are pursued for a long time
* Minimizes regression bugs, since thorough testing is done at every stage before release (i.e. continuously)
* Can put a strain on developers who have to submit changes constantly
* Can be costly to set up, as it requires a server and staff and training developers to use properly

**17. What is the correct order of the Continuous Integration process stages?**

**Ans: Integration, Delivery and Deployment**

**18. Which statement is true?**

**Ans: Use of Continuous Integration and revision control methods are independent, but are usually employed together**

**19. The Linux Kernel Continuous Integration Project was initiated by:**

**Ans: Linaro**

**20. There are many tooling suites used for Continuous Integration. The most widely used one is:**

**Ans: Jenkins**

**21. What are some considerations that go into OSS license selection (Select all answers that apply)?**

**Ans:**

* Should all modifications be public (restrictive vs permissive)
* Policy on patents

**22. Which of the following is a "copyleft" license?**

**Ans: GPL**

**23. FUD stands for:**

**Ans: Fear, Uncertainty and Doubt**

**24. Select the true statement:**

**Ans: OSS and Closed Source Software can co-exist in a product, but careful analysis should be done to make sure proper boundaries are respected and enforced**

**25. Select the true statement:**

**Ans: Use of OSS has no predetermined effect on legal costs. It can lower them, since proper license enforcement can be built-in early, or it can raise them by having more people pick at the code if attribution has been sloppy**

**26. When first getting involved in an OSS project, you should (Select all answers that apply):**

**Ans:**

* Start by helping test and report results
* Consider what it is you would like to work on, either because it is needed by you, or it just interests you

**27. When working on an OSS project, the best strategy is to:**

**Ans: Submit changes one at a time in a sequential manner, even if the full change will not do much until the entire patch series is incorporated**

**28. When there is someone in the project community that gets abusive or just difficult to deal with, you should (Select all answers that apply):**

**Ans:**

* Actually read what they are saying; even if phrased in a nasty manner, the points might need addressing, and you can respond to them calmly
* Let established community members moderate the conflict

**29. You have worked hard on implementing a new feature for an OSS project and submitted your work. A senior maintainer liked you ideas, but ignored your implementation and substituted their own new one to the same end. You should:**

**Ans: If the other implementation is successful at achieving its purpose, you should accept the result gratefully (after registering your displeasure that rather than reviewing and modifying your work, it was abandoned), and contribute to improving the new implementation as needed**

**30. On a project mailing list, someone inserts an irrelevant political, religious, or philosophical comment into an otherwise technical discussion and this is at least mildly offensive to you. A good and proper response could be (Select all that apply):**

**Ans:**

* Politely ask the poster to not make such comments. If they counter with more and stronger statements, ask any discussion moderators to quiet the issue offline if needed.
* Ignore the comment and just answer the technical issues

**31. Select the correct statement. GitHub:**

**Ans: Is a private company acquired by Microsoft in 2018**

**32. Sites that offer services similar to GitHub include (select all that apply):**

**Ans:**

* GitLab
* GitKraken
* Launchpad

**33. When using a GitHub public repository:**

**Ans: Anyone on the Internet can download the data, but only authorized collaborators can upload information and modifications**

**34. To use Git, you:**

**Ans: Be on any operating system and version that has Git installed, and almost all do**

**35. To use GitHub and the other sites that provide repository hosting:**

**Ans: You can work from either a graphical interface or a command line**

**36. The abbreviation BDFL stands for:**

**Ans: The abbreviation BDFL stands for:**

**37. The job of a mentor includes:**

**Ans:**

* Teaching contributors how to handle criticism, as well as how to give constructive criticism
* Finding ways to empower people to give their maximum contribution
* Training new project contributors in how to submit their work successfully in the right form

**38. If a project fails in the sense that it stops moving forward, it is likely because (Select all answers that may apply):**

**Ans:**

* There is insufficient interest in the wider community of developers
* There are not enough developers contributing
* Leadership is poor

**39. Which statement is true?**

**Ans: A project should have a clear license to begin with. It may possibly make a change later if it really needs to, but that is often non-trivial if there are quite a few contributors**

**40. Most open source projects fail in the sense that they stagnate and fade away. Is this bad?**

**Ans: It is not bad. Many seeds are planted and only some bloom, and it is difficult to predict which ones. It is always good to encourage a lot of new ideas and methods, and let them compete until the winners emerge.**

**41. OSS projects should explicitly encourage diversity with respect to (Select all answers that apply):**

**Ans:**

* Sex and gender identity
* National origin and language
* Race

**42. The majority of OSS projects carry out their discussions in English. Therefore (Select all answers that apply):**

**Ans: One should always speak as clearly as possible, and while not being dull, think about the audience and what they will be familiar with**

**43. With respect to criticism, an OSS contributor and reviewer should (Select all answers that apply):**

**Ans:**

* Answer thoughtfully and point out where one agrees or disagrees, where changes are accepted or not.
* Not hold back, it is important to have open and forthright discussion

**44. Some one on an OSS mailing list introduces a political aside and perhaps a preference during a technical discussion. Appropriate responses include (Select all correct answers):**

**Ans:**

* Ignore the point and just address the technical issues as needed.
* Acknowledge the issue but briefly without putting down anyone with differing opinions. Avoid amplifying

**45. You propose a new way of doing something, or adding a new feature. Another contributor points out this idea was reject previously. You should (Select all answers that apply):**

**Ans:**

* Study the previous discussion and see whether it applies, including whether or not differences between your ideas and the old ones were not seen
* Ask whether or not technical abilities have evolved to the point where something that was not feasible can be done today
* Ask whether the need for this feature has grown; the earlier discussion may have been premature

**46. Which chapter in man contains information about standard user commands?**

**Ans: 1**

**47. Which commands get a list of all man pages named "file" (Select all answers that apply)?**

**Ans: $ whatis file**

**48. Select the true statements about getting documentation on echo (Select all answers that apply).**

**Ans:**

* help echo gives the information about the command embedded in the bash shell
* man echo gives the information about the system utility at /usr/bin/echo or /bin/echo

**49. Which of the following are command line help utilities?**

**Ans:**

* help
* man
* info

**50. To get a short help message about a command such as ls, listing options and arguments, type**

**Ans: ls --help**

**51. In the X Window System:**

**Ans: The server handles matters such as display and input devices, while the client can be anywhere and is the running application.**

**52. Which of the following are layers of the graphical system interface?**

**Ans:**

* Window Manager
* Desktop Manager
* Display Manager

**53. If you are running a GNOME desktop manager:**

**Ans: You can run KDE-based applications most of the time, as long as the underlying libraries have been installed by the distribution**

**54. Which of the following are Desktop Managers?**

**Ans:**

* GNOME
* XFCE
* KDE

**55. What are ways you can launch a terminal window on a graphical desktop?**

**Ans:**

* On many but not all desktops, right click anywhere on the background and click on Open Terminal
* Hit Alt-F2 and then type in the program name (e.g., gnome-terminal, konsole, xterm etc.)
* Find the "terminal" option in the Application or Favorites menu

**56. In order to install and use Linux:**

**Ans: You need a computer or an account in a cloud environment such as AWS, Azure or Google Cloud**

**57. Which of the following are members of the Debian distribution family (Select all answers that apply)?**

**Ans:**

* Linux Mint
* Ubuntu

**58. Which of the following are Enterprise Linux Distributions (Select all answers that apply)?**

**Ans:**

* SUSE
* RHEL

**59. Which of the following are important facilities Linux distributions provide?**

**Ans:**

* Make it easy to install Linux on a wide variety of hardware platforms
* Form the connecting bridge between end users and upstream developers, making sure each is aware of the other's situations
* Provide updates, upgrades and bug and security fixes to end user systems in a timely and controlled fashion
* Make sure all the different software on the system works together and is updated at once without conflicts

**60. Select all true answers:**

**Ans:**

* The term Linux really applies only to the core kernel, not the entire operating system.
* Linux borrowed heavily from basic UNIX features, but is not actually an implementation of the UNIX operating system.

**61. Which of the following pseudo-directories are empty when the system is not running (Select all answers that apply)?**

**Ans:**

* /sys
* /dev
* /proc

**62. Which of the following statements describes the best practice?**

**Ans: The current directory should not be placed in the path**

**63. If file does not exist, which command will produce an error?**

**Ans: ln file file2**

**64. Which command will list the partition information on the first hard disk and then exit?**

**Ans: fdisk -l /dev/sda**

**65. Which directory trees usually have frequently changing data, and would not be desirable on a partition that is more static? Select all answers that apply.**

**Ans:**

* /home
* /var
* /tmp

**66. Which of the following commands would add newbin, a directory in your home directory, to the PATH (Select all answers that apply)?**

**Ans:**

* PATH=HOME/newbin:PATH
* PATH=PATH:HOME/newbin

**67. To make an environment variable (VAR) effective for only one command (foobar), you should do:**

**Ans: VAR=value ./foobar**

**68. Which of the following expressions will give the correct mathematical result (7) for x = 10 (Select all answers that apply)?**

**Ans:**

* echo(($x - 3 ))
* echo(expr $x - 3)
* echo(expr $x-3)

**69. Which commands will get both the normal and error outputs of prog into afile?**

**Ans:**

* foo >& file
* foo > file 2>&1

**70. Which of the following commands has the correct syntax for specifying an alias?**

**Ans: alias doitall="make clean; make all; evince output.pdf"**

#### 71. Which of the following statements is true?

##### Ans: You can go back and forth between editors as much as you would like without a conversion process

#### 72. Which of the following methods can be used to produce a file with 3 lines in it? Select all answers that apply.

##### Ans:

cat<<EOF>myfile>lineone>linetwo>linethree>EOF

$ echo -e 'line one line two line three ' > myfile

echolineone>myfile echo line two >> myfile $ echo line three >> myfile

#### 73. Which statement is true?

##### Ans: vi involves switching between command and insert mode by hitting the Escape key

#### 74. Which pair of editors has partisan advocates who tend to wage war over which is better than the other?

##### Ans: vi and emacs

#### 75. Which editor can always be found installed by default on virtually any Linux system?

##### Ans: vi

**76. A rather complete picture of memory usage can be gotten by viewing the following pseudofile:**

**Ans: /proc/meminfo**

**77. Select all true statements:**

**Ans:**

* There is no uniform prescription for how much swap space to use.
* Memory used directly by the Linux kernel is never swapped out.
* Using swap space lets the system pretend it has more memory than it physically has.

**78. Which statement(s) are correct?**

**Ans:**

* A process may contain many threads.
* The pthreads library enables multithreaded applications to be written just once for many different operating systems.

**79. The OOM KIller**

**Ans: Tries to keep the system running by killing processes which are using more memory than can be supplied**

**80. Which of the following are utilities used to work with swap space?**

**Ans:**

* mkswap
* swapon
* swapoff

**81. Which networking configuration interface is newer and has extended capabilities?**

**Ans: ip**

**82. Using Predictable Network Interface Device Names (PNIDN) has come into use because:**

**Ans:**

* Many computers are no longer in one location; for example, laptops are on the move, and available interfaces are subject to change
* On modern systems, the order in which network hardware is found is less predictable
* Hardware such as USB devices can be added and removed at runtime

**83. Which command(s) will bring the network interface eth0 up and assign an address to it?**

**Ans:**

* sudo ifconfig eth0 up 192.168.1.100
* sudo ip addr add 192.168.1.100 dev eth0

**84. You can see statistics for the eth0 interface by (select all answers that apply):**

**Ans:**

* doing sudo ifconfig eth0
* doing sudo ip -s link show eth0
* looking at /sys/class/net/eth0/statistics

**85. What does MTU stand for?**

**Ans: Maximum Transfer Unit (usually 1500 bytes by default) for Ethernet packets**

**86. What is the proper order of system initialization stages on most x86-based systems?**

**Ans: BIOS -> GRUB -> init (PID 1)**

**87. Which files need to be in the /boot directory for the system to boot up (select all that apply)?**

**Ans:**

* vmlinuz
* initramfs

**88. Using GRUB lets you (Select all correct answers):**

**Ans:**

* Choose between operating systems or different Linux distributions
* Choose which Linux kernel to user for boot
* Choose various options for booting up the system

**89. Select the order in which the following system initialization methods were introduced:**

**Ans: SysVinit -> Upstart -> systemd**

**90. Which runlevel is multiple user with no graphical desktop?**

**Ans: 3**

**91. Which statements are true?**

**Ans:**

* It is impossible to unload a kernel module being used by another module
* It is impossible to unload a kernel module being used by an application.

**92. The lsmod utility shows for each loaded module (select all correct answers):**

**Ans:**

* How many processes depend on it
* What other modules are using it
* Its size in bytes

**93. Udev (select all correct answers):**

**Ans:**

* Stands for User Device
* Is responsible for populating the /dev directory once the system is up and running.
* Loads and unloads device drivers and other kernel modules as needed

**94. Which command will ensure the httpd service (Apache) starts at system boot?**

**Ans: sudo systemctl enable httpd.service**

**95. How could you ensure the httpd service (Apache) is restarted if it is already running, say to absorb a revised configuration file (select all correct answers)?**

**Ans:**

* sudo systemctl restart httpd
* sudo systemctl stop httpd && sudo systemctl start httpd

**96. Which of the following utilities can be used to monitor I/O activity? (We encourage you to try all of them, as this is the best way to learn)**

**Ans:**

* vmstat
* iotop
* iostat
* sar

**97. Which of the following utilities can be used to monitor process and system load activity? (We encourage you to try all of them as this is the best way to learn)**

**Ans:**

* top
* ps
* uptime

**98. Your system seems memory-starved and is slowing down. Which utilities would give you information about your memory usage?**

**Ans:**

* free
* pmap
* vmstat

**99. Which statement is true?**

**Ans: It is easier to monitor system activity using command line tools, since they vary little from one Linux distribution to the next.**

**100. Which are high level graphical system monitoring tools?**

**Ans:**

* gnome-system-monitor
* ksysguard

**101. Depending on Linux distribution, which commands can install the libaio package and any packages it needs to function that are not already installed (Select all answers that apply)?**

**Ans:**

* sudo zypper install libaio
* sudo apt-get install libaio
* sudo yum install libaio
* sudo dnf install libaio

**102. Which command(s) can upgrade an entire system (Select all answers that apply)?**

**Ans:**

* sudo apt-get dist-upgrade
* dnf update
* sudo yum update
* zypper update

**103. System logging files are kept under:**

**Ans: /var/log**

**104. Where would the user named student usually find their personal files?**

**Ans: /home/student**

**105. The logrotate program:**

**Ans: Cyclically rotates and optionally compresses log files to save space**

**106. Basic information about the characteristics of a user's account can be found in:**

**Ans: /etc/passwd**

**107. Adding a new user to a group is done with:**

**Ans: usermod**

**108. Which provides stronger security and auditing for system activity:**

**Ans: sudo**

**109. Differences between su and su - include (Select all answers that apply):**

**Ans:**

* su - starts a new login shell, while su just continues the current shell, but gives it super privileges
* su preserves more information, such as current directory, path and environment variables

**110. Which is the proper way to use sudo with echo?**

**Ans: sudo bash -c "echo 3 > /proc/sys/vm/drop\_caches"**

**111. Which of the following commands are equivalent (Select all answers that apply)?**

**Ans:**

* if [[ -f file.c ]] ; then cat file.c ; fi
* if test -f file.c ; then cat file.c ; fi
* if [ -f file.c ] ; then cat file.c ; fi
* [[ -f file.c ]] && cat file.c

**112. Which commands will list all files under the current directory ending in "~" (Select all answers that apply)?**

**Note: Output lists may differ in format.**

**Ans:**

* find . -name "\*~" -exec ls -l {} ';'
* find . -name "\*~" -ls
* find . -name "\*~" | xargs ls -l
* ls -l $(find . -name "\*~")

**113. Functions (subprograms) are useful in bash scripts because (Select all answers that apply):**

**Ans:**

* It is better not to have to call another script to get things done
* They make things easier to read and comprehend
* They eliminate the need to retype the same set of commands more than once

**114. How would you get the value of a variable named VAR into a script?**

**Ans: read VAR**

**115. Select the correct statement:**

**Ans: A bash function must be placed before it is used in a script**

**116. Which command will list all files under the current directory with a .cfg extension, and then delete them?**

**Ans: find . -name "\*.cfg" -exec rm {} ';'**

**117. Which command will list all files and directories on the system with cfg in their name?**

**Ans: ls -l $(locate cfg)**

**118. Which command will find all files and directories in the system whose name ends with cfg?**

**Ans: locate -r "cfg$"**

**119. Which commands can change all occurrences within a file of the string boris to natasha (Select all answers that apply)?**

**Ans:**

* sed -e s:boris:natasha:g file
* sed -e s/boris/natasha/g file

**120. Which command will print out all lines beginning with "X" in all files in the current directory?**

**Ans: grep "^X" \***

**121. Which command is used to combine three files into a fourth file?**

**Ans: cat file1 file2 file3 > file4**

**122. Which of the following commands can be used to view the last 15 lines of a file (Select all answers that apply)?**

**Ans:**

* tail -15 some\_file
* tail -n15 some\_file

**123. Which of the following commands will replace all instances of the word "dog" with "pig" in the file named some\_file and send the output to stdout (Select all answers that apply)?**

**Ans:**

* sed -e s:dog:pig:g some\_file
* sed -e s/dog/pig/g some\_file
* cat some\_file | sed -e s/dog/pig/g

**124. Which commands can be used to print the lines that contain the numbers 0–5 in a file (Select all answers that apply)?**

**Ans:**

* grep [0,1,2,3,4,5] filename
* grep [0-5] filename

**125. Which command is used to extract columns from a file to work on them later?**

**Ans: cut**

**126. Which statement is correct?**

**Ans: In Linux, file types are rarely determined by extension letters**

**127. If the first character in the long file listing is a "-", the listed object is a:**

**Ans: Normal File**

**128. If the first character in the long file listing is an "s", the listed object is a:**

**Ans: Unix Domain Socket**

**129. Which of the following commands are equivalent (Select all answers that apply):**

**Ans:**

* chown donald.ducks file
* chown donald file ; chgrp ducks file
* chown donald:ducks file

**130. Which command will give all users the right to look at a file, but give only the owner the right to change it or execute it:**

**Ans: chmod 744 some\_file**

**131. Which of the following are journaling filesystems (Select all answers that apply):**

**Ans:**

* btrfs
* ext4
* XFS

**132. For a filesystem to be mounted at boot:**

**Ans: It must be listed in /etc/fstab**

**133. When mounting a filesystem, it may be specified by any of the following methods (Select all answers that apply):**

**Ans:**

* Device node
* UUID
* Label

**134. LVM stands for:**

**Ans: Logical Volume Management**

**135. Loopback filesystems (Select all answers that apply):**

**Ans:**

* Have slower performance than just having a native filesystem
* Can be useful for testing filesystem features

**136. Use of a package management system (Select all true statements):**

**Ans: Simplifies upgrade and update of individual software packages, as well as the system**

**137. Which of the following distributions use the RPM package management system (Select all answers that apply)?**

**Ans:**

* SUSE
* Red Hat
* Fedora
* CentOS

**138. Which of the following distributions use the APT (dpkg) package management system (Select all answers that apply)?**

**Ans:**

* Linux Mint
* Ubuntu
* Debian

**139. With RPM, all information to configure, compile and install is contained in:**

**Ans: The spec file**

**140. Which of the following statements are true (Select all answers that apply)?**

**Ans:**

* The source package contains one file in RPM-based systems
* The source package contains multiple files in Debian-based systems

**141. GCC stands for:**

**Ans: GNU Compiler Collection**

**142. A good choice of compiler options for day-to-day use would be:**

**Ans: gcc -O2 -Wall -pedantic program.c**

**143. Why might you choose to link your program statically, rather than use a shared library version?**

**Ans: The static program will not use new versions of shared libraries as they become available, and thus may avoid breakage and bugs**

**144. To find the shared libraries used by /usr/bin/cp you can do (Select all answers that apply):**

**Ans:**

* ldd $(which cp)
* ldd /usr/bin/cp

**145. Which statements are true (Select all answers that apply):**

**Ans:**

* Use of shared libraries can cause bugs because the application may conflict with the new library version
* Applications can load faster when using shared libraries
* Use of shared libraries saves memory
* Use of shared libraries enables applications to stay up to date with new library features without being recompiled

**146. Which of the following statements are true (Select all answers that apply)?**

**Ans:**

* Java programs developed on other systems can be expected to run without modification on Linux
* There are a number of choices which can be used for the Java implementation on Linux machines, and one can switch between them
* The biggest problem in porting Java code to Linux is often fear

**147. Which utility can be used to select the default Java Implementation on a Linux system?**

**Ans: alternatives**

**148. Which commands will show you information about which version of Java you are running (Select all answers that apply):**

**Ans:**

* readlink−f(which java)
* java -version

**149. Which of the following are Integrated Development Environments that can be used for Java on Linux (Select all answers that apply)?**

**Ans:**

* NetBeans
* Eclipse

**150. If you are experienced in using Eclipse on another operating system, when moving to Linux:**

**Ans: The interface and functioning should be almost the same and have little or no learning curve required**

#### 151. Which statement is true?

##### Ans: Virtually all Linux distributions have a new enough version of git in their normal binary packaging systems you can use for all day-to-day work. You only need the latest version if you are developing git itself

#### 152. Which statement is true?

##### Ans: It is irrelevant how a repository is created or updated, you can use either a command line or graphical interface to git

#### 153. What command you must issue to list all files in the repository?

##### Ans: git ls-files

#### 154. What does the git rm some\_file command do?

##### Ans: Removes some\_file from the repository and from the working file tree

#### 155. Which of the following statement about an "ignored" file in git is correct?

##### Ans: An ignored file is enumerated in a .gitignore file

**156. Which revision control system requires a user to lock a file when it is checked out, so that other developers cannot work on it easily at the same time?**

**Ans: RCS**

**157. Which revision control systems have a central repository which may be on a network server (Select all answers that apply):**

**Ans:**

* CVS
* Subversion

**158. When using git:**

**Ans: Conflicts between different developers require manual examination and fixing by a maintainer**

**159. Select the true statement:**

**Ans: It is possible to convert Git repositories for use by Subversion and CVS**

**160. Select the true statement:**

**Ans: It is possible to import (convert) CVS and Subversion repositories into Git**

**161. Revision control systems are**

**Ans: Useful even with a sole developer working on a project**

**162. Git was originally a creation of:**

**Ans: Linus Torvalds**

**163. Which statement is true?**

**Ans: With Git, conflicting contributions must be resolved by a human being**

**164. Which of the following commands will provide documentation on how to create a new branch with git (Select all answers that apply)?**

**Ans:**

* git branch --help
* man git-branch
* git help branch

**165. Which of the following are Revision Control Systems? Select all answers that apply.**

**Ans:**

* Git
* Subversion
* CVS

#### 166. How can you get a brief list of all git subcommands?

##### Ans: git

#### 167. Which command initializes a new Git repository:

##### Ans: git init

#### 168. How would you store in the repository the user's name and email address?

##### Ans: git config user.name "myname"; git config user.email "me@linux"

#### 169. Which command places new files in the repository?

##### Ans: git add

#### 170. Which command puts changes in the repository?

##### Ans: git commit

**171. In Git, branching is the inverse process to:**

**Ans: merging**

**172. A detailed branching history can be shown by:**

**Ans: git show-branch**

**173. To examine an earlier version of a file in commit 3888bc981a, do:**

**Ans: git show 3888bc981a:kernel/sys.c**

**174. You can list all current branches on the local machine with:**

**Ans:**

* git branch
* git branch --list
* git branch -v

**175. The command git checkout some\_branch**

**Ans: switches to some\_branch**

#### 176. What does the command git revert c87e6ae4 do?

##### Ans: Removes the changes associated with the commit that starts with c87e6ae4

#### 177. To see which files have changed and what the exact changes are, do:

##### Ans: git log -p

#### 178. Some time over the past 1000 commits, a change was introduced that caused a program to fail. Assuming you have a good test to establish a bad version, what is the largest number of bisects that should be needed to locate the commit containing the defective patch?

##### Ans: 10

#### 179. In the command git gc, what does gc stand for?

##### Ans: garbage collection

#### 180. The command git blame some\_file:

##### Ans: Tells you where every line in some\_file came from by date and author

**181. If there are two branches, br1 and br2, showing all differences between them can be done with:**

**Ans: git diff br1 br2**

**182. Showing which files have changed between two branches can be done with (Select all answers that apply):**

**Ans:**

* git diff --stat br1 br2
* git diff --numstat br1 br2

**183. Showing all differences between the current working tree and the last commit can be done with:**

**Ans: git diff**

**184. In the command git diff tag1 name2, if tag1 is a tag, name2 can be a (select all correct answers):**

**Ans:**

* another tag
* a branch name
* a previous commit identifier

**185. How can you see the differences in file1 between tag1 and tag2?**

**Ans: git diff tag1 tag2 file1**

#### 186. In git, the fundamental content-full object that is stored, is called a:

##### Ans: blob

#### 187. When a repository is "forked", the new repository

##### Ans: Is structurally equal to the old one and contains the entire history

#### 188. Publishing a repository means:

##### Ans: Making the results visible and available to other contributors

#### 189. Upstream and downstream git repositories are:

##### Ans: Structurally the same; it is a socio-political decision which repositories are upstream or downstream

#### 190. The long hexadecimal numbers associated with git commits:

##### Ans: Serve as both identifiers and helpful checksums

#### 191. An "ignored" file in git is one that:

##### Ans: Is enumerated in a .gitignore file

#### 192. The command git rm some\_file:

##### Ans: Removes some\_file from the working file tree and the index

#### 193. The command rm some\_file

##### Ans: Removes some\_file from working file tree, but not from the repository

#### 194. To list all files in the repository, issue the command:

##### Ans: git ls-files

#### 195. The command git mv some\_file new\_name\_or\_location

##### Ans: Moves (renames) the file in both the repository and the working tree

**196. Which procedure does a better job of preserving a project's history?**

**Ans: git merge**

**197. Why might a merge result in problems that do not show conflicts (select all correct answers)?**

**Ans:**

* There may be two different solutions to the same problem which interfere with other
* A merge might affect code in a very different part of the product in a non-obvious way and not receive enough testing

**198. A git rebase**

**Ans: adapts a branch to incorporate the latest changes in another branch without yet merging this branch into the other branch**

**199. How would you merge two branches (br1 and br2) into the master branch?**

**Ans: git checkout master && git merge br1 && git merge br2**

**200. What do you do when a merge fails?**

**Ans: Evaluate the conflict, see what the correct result should be and then fix**