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GIAC Certified Unix Administrator (GCUX) Practical Assignment  
Examination Questions  
SANS Network Security 2000 (Monterey, CA)

## Format used in this practical assignment:

- #. Question statement
  - A. Choice 1
  - B. Choice 2
  - C. Choice 3
  - D. Choice 4

*Answer (Track.Course Book Title, page/slide number)*

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1. What is the name of the program that starts all other boot processes?
  - A. sched
  - B. init
  - C. pagedaemon
  - D. ps

*B (6.1 Unix Basics for the Security Professional, page 2-13)*

2. Which of the following characters is not allowed in a Unix filename?
  - A. /
  - B. ?
  - C. -
  - D. \*

*A (6.1 Unix Basics for the Security Professional, page 2-25)*

3. Which directory holds most Unix system configuration files?
  - A. /usr
  - B. /var
  - C. /etc
  - D. /home

*C (6.1 Unix Basics for the Security Professional, page 2-29)*

4. Which is not one of the standard Unix file permission bits?
  - A. read
  - B. write
  - C. change
  - D. execute

*C (6.1 Unix Basics for the Security Professional, page 2-35)*

5. What is the result of setting the sticky bit on a directory?
  - A. Anyone may add files to the directory.
  - B. Anyone may remove files from the directory.
  - C. Only the owner may add files to the directory.
  - D. Only the owner may remove files from the directory.

*D (6.1 Unix Basics for the Security Professional, page 2-37)*

6. Which of the following commands will copy an entire directory tree?
  - A. cp -R
  - B. xcopy
  - C. mv
  - D. cp -p

*A (6.1 Unix Basics for the Security Professional, page 2-46)*

7. What Unix command displays the path of the current working directory?
- A. ls
  - B. pwd
  - C. cwd
  - D. path

*B (6.1 Unix Basics for the Security Professional, page 2-50)*

8. What is the minimum link count for a directory?
- A. Zero
  - B. One
  - C. Two
  - D. Three

*C (6.1 Unix Basics for the Security Professional, page 2-51)*

9. What is the Unix command used to find strings in text files?
- A. strings
  - B. file
  - C. find
  - D. grep

*D (6.1 Unix Basics for the Security Professional, page 2-55)*

10. What is the Unix command used to replace strings within text files?
- A. sed
  - B. awk
  - C. mv
  - D. replace

*A (6.1 Unix Basics for the Security Professional, page 2-56)*

11. What is the Unix command used to extract strings from binary files?
- A. strings
  - B. file
  - C. find
  - D. grep

*A (6.1 Unix Basics for the Security Professional, page 2-57)*

12. What is the Unix command that describes the contents of a file?
- A. strings
  - B. file
  - C. find
  - D. grep

*B (6.1 Unix Basics for the Security Professional, page 2-58)*

13. What is the Unix command used to display the beginning of a file?
- A. head
  - B. first
  - C. begin
  - D. front

*A (6.1 Unix Basics for the Security Professional, page 2-59)*

14. What is the Unix command used to display the end of a file?
- A. last
  - B. end
  - C. back
  - D. tail

*D (6.1 Unix Basics for the Security Professional, page 2-59)*

15. What is the third field of the password file?
- A. username
  - B. password
  - C. user ID
  - D. full name

*C (6.1 Unix Basics for the Security Professional, page 2-66)*

16. What is the UID of the superuser account?
- A. 0
  - B. 1
  - C. 100
  - D. 65535

*A (6.1 Unix Basics for the Security Professional, page 2-71)*

17. What Unix command is used to send a signal to a running process?
- A. `exec`
  - B. `kill`
  - C. `signal`
  - D. `call`

*B (6.1 Unix Basics for the Security Professional, page 2-79)*

18. Which signal causes many daemons to reread their configuration files?
- A. `SIGHUP`
  - B. `SIGINT`
  - C. `SIGTERM`
  - D. `SIGCHLD`

*A (6.1 Unix Basics for the Security Professional, page 2-80)*

19. Which of the following information is not returned by the `ifconfig` command?
- A. IP address
  - B. hardware address
  - C. netmask
  - D. hostname

*D (6.1 Unix Basics for the Security Professional, page 2-87)*

20. Which configuration file specifies the address of the name server?
- A. `/etc/nsswitch.conf`
  - B. `/etc/nodename`
  - C. `/etc/resolv.conf`
  - D. `/etc/hosts`

*C (6.1 Unix Basics for the Security Professional, page 2-93)*

21. Which Unix command can be used to list the current routing table?
- A. `route -l`
  - B. `route -a`
  - C. `netstat -a`
  - D. `netstat -r`

*D (6.1 Unix Basics for the Security Professional, page 2-100)*

22. Which protocol is used to map hardware address to IP addresses?
- A. HTTP
  - B. ARP
  - C. QIP
  - D. None of the above

*B (6.1 Unix Basics for the Security Professional, page 2-102)*

23. What is the command that is used to determine if a host is alive on the network?
- A. nslookup
  - B. telnet
  - C. ping
  - D. arp

*C (6.1 Unix Basics for the Security Professional, page 2-105)*

24. What service is used to schedule recurring events?
- A. cron
  - B. syslog
  - C. at
  - D. lp

*A (6.1 Unix Basics for the Security Professional, page 2-110)*

25. What command should be used by a user to edit his own list of scheduled jobs?
- A. vi /var/cron/crontabs/username
  - B. crontab -l
  - C. crontab -e
  - D. crontab -c

*C (6.1 Unix Basics for the Security Professional, page 2-118)*

26. What property of a Unix password allows an attack to succeed?
- A. non-repudiation
  - B. reuse
  - C. encryption
  - D. length

*B (6.2 Common Issues and Vulnerabilities in Unix Security, page 8)*

27. Which of the following can be used to defeat password sniffing?
- A. switched network
  - B. SSH
  - C. both A & B
  - D. there is no way to defeat password sniffing

*C (6.2 Common Issues and Vulnerabilities in Unix Security, page 11)*

28. Which of the following should not be done if printing a password sheet?
- A. Distribute on a need to know basis
  - B. Use a small font
  - C. List system names
  - D. Permute the actual passwords

*C (6.2 Common Issues and Vulnerabilities in Unix Security, page 14)*

29. What algorithm is used to encrypt most Unix passwords?
- A. IDEA
  - B. Blowfish
  - C. 3DES
  - D. DES

*D (6.2 Common Issues and Vulnerabilities in Unix Security, page 17)*

30. Approximately how many unique Unix passwords are there?
- A. 1 million
  - B. 12 billion
  - C. 800000
  - D. 7 trillion

*D (6.2 Common Issues and Vulnerabilities in Unix Security, page 21)*

31. Where does a modern Unix system store encrypted passwords?
- A. in memory
  - B. /etc/shadow
  - C. /etc/passwd
  - D. none of the above

*B (6.2 Common Issues and Vulnerabilities in Unix Security, page 23)*

32. On modern Unix system, which user(s) is/are allowed to read the encrypted passwords?
- A. root
  - B. all users
  - C. members of group wheel
  - D. Only A & C

*A (6.2 Common Issues and Vulnerabilities in Unix Security, page 23)*

33. Which of the following may generate a core file?
- A. Programming errors
  - B. Buffer overflow
  - C. SIGQUIT
  - D. all of the above

*D (6.2 Common Issues and Vulnerabilities in Unix Security, page 28)*

34. How can a user prevent core files from being generated?
- A. Issue `ulimit -c 0`
  - B. Issue `limit coredumpsize 0`
  - C. This can be done but is dependent on which shell the user is running.
  - D. Users cannot prevent core files.

*C (6.2 Common Issues and Vulnerabilities in Unix Security, page 30)*



35. When do race conditions occur?
- A. When there is a time lag between two file operations
  - B. When there is a time lag between opening and writing to a file
  - C. When there is a time lag between logging in and beginning to do work
  - D. None of the above

*A (6.2 Common Issues and Vulnerabilities in Unix Security, page 33)*

36. How does a buffer overflow occur?
- A. Long input strings are given to a program.
  - B. Programs do not check input length, accepting any input that they are given.
  - C. Two large numbers are multiplied together.
  - D. Passwords that are too long are created.

*B (6.2 Common Issues and Vulnerabilities in Unix Security, page 39)*

37. What can be done to prevent a buffer overflow attack from succeeding?
- A. Alter program code to reject input that is too long.
  - B. Modify the OS kernel so that it does not execute instructions from the stack.
  - C. Increase the size of the buffer.
  - D. Both A & B

*D (6.2 Common Issues and Vulnerabilities in Unix Security, pages 44-45)*

38. Which of the following is not a viable alternative to using set UID shell scripts?
- A. Give everyone the password to the root account.
  - B. Write the script in Perl, using its mechanism for handling set UID.
  - C. Write the program in a compiled language.
  - D. Use a compiled wrapper program to sanitize the environment before the script runs.

*A (6.2 Common Issues and Vulnerabilities in Unix Security, page 58)*

39. Which of the following commands can be used to create a “jail” in which to run processes?
- A. chmod
  - B. chown
  - C. chroot
  - D. chgrp

*C (6.2 Common Issues and Vulnerabilities in Unix Security, page 62)*

40. Which file should never be copied into an FTP server’s jail?
- A. /etc/password
  - B. /bin/ls
  - C. /usr/lib/ld.so.1
  - D. /etc/shadow

*D (6.2 Common Issues and Vulnerabilities in Unix Security, page 68)*

41. Which file specifies a list of hosts and/or users who may login without a password?
- A. .rhosts
  - B. ftp.users
  - C. hosts
  - D. passwd

*A (6.2 Common Issues and Vulnerabilities in Unix Security, page 84)*

42. What does a + indicate in a .rhosts file?
- A. Username “+” may log in.
  - B. The name following the + may not log in.
  - C. It is a wildcard, allowing anyone to log in.
  - D. It indicates a comment.

*C (6.2 Common Issues and Vulnerabilities in Unix Security, page 84)*

43. Why should usernames not be used in /etc/hosts.equiv?
- A. It becomes too difficult to maintain for large systems.
  - B. It allows that remote user to log into the local host as any user.
  - C. It invalidates the file.
  - D. There is nothing wrong with this.

*B (6.2 Common Issues and Vulnerabilities in Unix Security, page 85)*

44. What should the permissions be on a .rhosts file?
- A. 644
  - B. 700
  - C. 600
  - D. 664

*C (6.2 Common Issues and Vulnerabilities in Unix Security, page 87)*

45. Which of the following is not a concern with using .Xauthority to help secure X windows sessions?
- A. Users do not understand how to use it.
  - B. Connection speed is slowed.
  - C. NFS mounted home directories make it easier to steal a .Xauthority file.
  - D. No method of cookie revocation exists.

*B (6.2 Common Issues and Vulnerabilities in Unix Security, page 91)*

46. Which of the following services is dangerous because it allows for unauthenticated file transfers?
- A. rexec
  - B. ftp
  - C. telnet
  - D. tftp

*D (6.2 Common Issues and Vulnerabilities in Unix Security, page 97)*

47. Why should RPC based services be disabled?
- A. They have had numerous root compromise issues in the past.
  - B. They tend to be exploited by denial of service tools.
  - C. They rely on the remote host to authenticate a user.
  - D. All of the above.

*D (6.2 Common Issues and Vulnerabilities in Unix Security, pages 104-106)*

48. How can RPC services be secured?
- A. Block access to the portmapper.
  - B. Only allow root to use RPC services.
  - C. Change the port on which the portmapper runs.
  - D. RPC cannot be secured and should be disabled.

*A (6.2 Common Issues and Vulnerabilities in Unix Security, page 107)*

49. What information can be retrieved using the `ypcat` command in a NIS environment?
- A. usernames
  - B. full names of users
  - C. encrypted password strings
  - D. all of the above

*D (6.2 Common Issues and Vulnerabilities in Unix Security, page 109)*

50. "A backup isn't a backup until:
- A. you lock it away."
  - B. you store it offsite."
  - C. you do a restore."
  - D. you write it to CD-ROM."

*C (6.2 Common Issues and Vulnerabilities in Unix Security, page 125)*

51. Which of the following is not checked for the root account by COPS?
- A. root is in /etc/ftpusers
  - B. root is not in any user's .rhost file
  - C. a "+" does not appear in /etc/hosts.equiv
  - D. non-root entries do not exist in /.rhosts

*B (6.3 Unix Security Tools and Their Uses, slide 23)*

52. Which of these is not checked for by TIGER on an NFS server?
- A. Exporting of the root directory
  - B. Giving anonymous access UID 0
  - C. Granting root access to other hosts
  - D. Exporting a directory everywhere

*C (6.3 Unix Security Tools and Their Uses, slide 96)*

53. Which of the following tools includes Kuang, which describes how to crack a system?
- A. TIGER
  - B. COPS
  - C. nmap
  - D. Tripwire

*B (6.3 Unix Security Tools and Their Uses, slide 47)*

54. Which of these tools can be used to examine log files for evidence of cracking?
- A. nmap
  - B. ISS
  - C. Logcheck
  - D. Tripwire

*C (6.3 Unix Security Tools and Their Uses, slide 153)*

55. What program may be run to identify what process are associated with open connections on the local system?
- A. lsof
  - B. nmap
  - C. nessus
  - D. SATAN

*A (6.3 Unix Security Tools and Their Uses, slide 166)*

56. Which of the following is a disadvantage when using lsof?
- A. It reports too much information.
  - B. It opens security vulnerabilities while it is running.
  - C. It may block.
  - D. It has cryptic output.

*C (6.3 Unix Security Tools and Their Uses, slide 184)*

57. Which of the following SMTP checks are not made by ISS?
- A. Aliases checks
  - B. wiz command
  - C. debug command
  - D. None of the above

*D (6.3 Unix Security Tools and Their Uses, slides 204-205)*

58. Which check is not done by the nfsbug tool?
- A. guessable NFS filehandles
  - B. anonymous root access
  - C. chdir allowing access outside of exported filesystem
  - D. UID overflow bug

*B (6.3 Unix Security Tools and Their Uses, slide 217)*

59. Which of the following is a disadvantage of using SATAN?
- A. It has a poor user interface.
  - B. It only checks for well-known vulnerabilities.
  - C. It allows administrators to add checks for the local site.
  - D. Its scans may get written into system logs.

*B (6.3 Unix Security Tools and Their Uses, slide 243-244)*

60. What is the purpose of courtney?
- A. Check for local system vulnerabilities
  - B. Check for remote system vulnerabilities
  - C. Detect system scanners such as SATAN
  - D. Detect cracking attempts

*C (6.3 Unix Security Tools and Their Uses, slide 247)*

61. Which of this is not a disadvantage of courtney?
- A. It generates a large number of false positives.
  - B. It may cause core dumps on busy networks.
  - C. It only detects one kind of attack.
  - D. It can detect attacks on multiple hosts.

*D (6.3 Unix Security Tools and Their Uses, slides 252-253)*

62. What is the purpose of nmap?
- A. Check for local system vulnerabilities
  - B. Scan for open ports on remote hosts
  - C. Detect system scanners such as SATAN
  - D. Detect cracking attempts

*B (6.3 Unix Security Tools and Their Uses, slide 256)*

63. Which of the following is nmap not capable of doing?
- A. Determining remote operating system
  - B. Scanning multiple hosts in a single run
  - C. Stealth scans
  - D. Checking versions of running services

*D (6.3 Unix Security Tools and Their Uses, slides 262, 275-276)*

64. How does one list authorized nessus users?
- A. `nessus -u`
  - B. `nessus --users`
  - C. `nessusd -L`
  - D. `nessusd -u`

*C (6.3 Unix Security Tools and Their Uses, slide 285)*

65. Which of the following is done by tcp\_wrapper?
- A. Log outgoing connections
  - B. Filter outgoing connections
  - C. Filter incoming connections
  - D. Snoop connections to remote hosts

*C (6.3 Unix Security Tools and Their Uses, slide 296)*

66. Which of these programs tests tcp\_wrapper access rules?
- A. `tcpdmatch`
  - B. `tcpdchk`
  - C. `tcpd`
  - D. `tcpdump`

*A (6.3 Unix Security Tools and Their Uses, slide 299)*

67. Which is not a short-coming of using tcp\_wrapper?
- A. Inadequate checks
  - B. No control over which daemons can be contacted
  - C. False sense of security
  - D. Unreliable mechanism to identify remote users

*B (6.3 Unix Security Tools and Their Uses, slide 324)*

68. What is the purpose of `sudo`?
- A. Provide a restricted set of commands that may be run with privileges
  - B. Restrict remote access to a host
  - C. Run programs remotely
  - D. Check for system vulnerabilities

*A (6.3 Unix Security Tools and Their Uses, slide 328)*

69. What is the `sudo` timestamp file used for?
- A. Check the time of day for access restriction
  - B. Log when users use `sudo`
  - C. Prevent entry of password if it has been entered recently
  - D. Update the system time to synchronize it with other hosts

*C (6.3 Unix Security Tools and Their Uses, slide 330)*

70. What type of keys must be used with PGP to ensure compatibility with older versions?
- A. Diffie-Hellman
  - B. Blowfish
  - C. IDEA
  - D. RSA

*D (6.3 Unix Security Tools and Their Uses, slide 374)*

71. Where should a PGP private key be stored for greatest security?
- A. On a secure FTP server
  - B. In a user's home directory
  - C. On a standalone system
  - D. In a networked key repository

*C (6.3 Unix Security Tools and Their Uses, slide 384)*

72. What RCS command is used to retrieve a file for editing?
- A. `co`
  - B. `rcs -o`
  - C. `rcs -l`
  - D. `ci`

*A (6.3 Unix Security Tools and Their Uses, slide 389)*

73. What is the purpose of the tool `crack`?
- A. Gain root access to a remote system
  - B. Guess passwords
  - C. Examine the local system for vulnerabilities
  - D. Change the root password

*B (6.3 Unix Security Tools and Their Uses, slide 401)*

74. What is S/Key?
- A. A method of securing email
  - B. A replacement for telnet
  - C. A one time password implementation
  - D. A replacement for rlogin

*C (6.3 Unix Security Tools and Their Uses, slide 428)*

75. Who is the author of COPS?
- A. Mudge
  - B. Craig Rowland
  - C. Weitse Venema
  - D. Dan Farmer

*D (6.3 Unix Security Tools and Their Uses, slide 19)*

76. What file is used to control user access to wu-ftpd?
- A. /etc/ftpconversions
  - B. /etc/ftpaccess
  - C. /etc/ftpgroups
  - D. /etc/ftpservers

*B (6.4 Running Unix Applications Securely, page 14)*

77. How is guest access to a server running wu-ftp disabled within that file?
- A. class           all    guest,anonymous   \*
  - B. class           all    guest                \*
  - C. class           all    real                 \*
  - D. class           all    anonymous,real    \*

*C (6.4 Running Unix Applications Securely, page 15)*

78. What is the name of the Linux package that configures permissions for anonymous FTP access?
- A. anonftp
  - B. ftpconfig
  - C. ftpaccess
  - D. anon

*A (6.4 Running Unix Applications Securely, page 17)*



79. How does one use TCP wrappers to limit ftp access to machines in mydomain.com?
- A. "ftp: mydomain.com" in hosts.allow
  - B. "in.ftpd: .mydomain.com" in hosts.deny
  - C. "in.ftpd: \*.mydomain.com" in hosts.allow
  - D. "in.ftpd: .mydomain.com" in hosts.allow

*D (6.4 Running Unix Applications Securely, page 18)*

80. What is the proper hosts.allow entry to allow open access to an anonymous FTP server?
- A. in.ftpd: ALL
  - B. in.ftpd: OPEN
  - C. in.ftpd: ANONYMOUS
  - D. TCP wrappers will not allow open access to an anonymous FTP server.

*A (6.4 Running Unix Applications Securely, page 18)*

81. What should be the Unix permissions for an anonymous FTP upload directory?
- A. 666
  - B. 777
  - C. 333
  - D. 644

*C (6.4 Running Unix Applications Securely, page 21)*

82. Which of the following modules does Apache install by default?
- A. mod\_auth\_dbm
  - B. mod\_perl
  - C. mod\_digest
  - D. mod\_access

*D (6.4 Running Unix Applications Securely, page 31)*

83. In recent versions of Apache, what is the name of the configuration file?
- A. httpd.conf
  - B. apache.conf
  - C. config.apache
  - D. rc.httpd

*A (6.4 Running Unix Applications Securely, page 33)*

84. What is the difference between specifying “order allow, deny” and “order deny, allow” in the Apache configuration?
- A. There is no difference; they may be used interchangeably.
  - B. The first defaults to allow; the second defaults to deny.
  - C. The first defaults to deny; the second defaults to allow.
  - D. The second is not a valid command.

C (6.4 Running Unix Applications Securely, page 37)

85. What is the proper Apache configuration syntax to reject connections from hackers.com?
- A. allow all but hackers.com
  - B. deny hackers.com
  - C. reject from hackers.com
  - D. deny from hackers.com

D (6.4 Running Unix Applications Securely, page 38)

86. When should Apache not be allowed to run CGI scripts out of any directory?
- A. The host needs to be kept secure.
  - B. The users are trusted to write safe scripts.
  - C. The system has no users and no visitors.
  - D. The rest of the server is so vulnerable that one more risk is not significant.

A (6.4 Running Unix Applications Securely, page 39)

87. Which configuration option prevents Apache from executing programs from within server parsed HTML files?
- A. NOEXEC
  - B. IncludesNOEXEC
  - C. NoIncludesExec
  - D. NoParse

B (6.4 Running Unix Applications Securely, page 41)

88. Which file in a directory overrides the default settings for that directory?
- A. httpd.conf
  - B. apache.conf
  - C. .htaccess
  - D. .dirsettings

C (6.4 Running Unix Applications Securely, page 43)

89. Which of the following attributes of a parameter of a CGI program is arbitrary?
- A. name
  - B. value
  - C. length
  - D. all of the above

*D (6.4 Running Unix Applications Securely, page 52)*

90. How is the global DNS database organized?
- A. Distributed and hierarchical
  - B. Centralized and hierarchical
  - C. Distributed and flat
  - D. Centralized and flat

*A (6.4 Running Unix Applications Securely, page 64)*

91. Which of the following is not a security issue when using BIND?
- A. Unnecessary release of information
  - B. Buffer overflows
  - C. Lack of authentication
  - D. Cache poisoning

*C (6.4 Running Unix Applications Securely, page 67)*

92. Under what username should BIND run?
- A. root
  - B. bin
  - C. any privileged user assigned for this purpose
  - D. any non-privileged user assigned for this purpose

*D (6.4 Running Unix Applications Securely, page 96)*

93. Which of the following is not a common security issue noted when running an SMTP server?
- A. mail forgery
  - B. buffer overflow
  - C. back doors
  - D. none of the above

*D (6.4 Running Unix Applications Securely, page 108)*

94. For what program was the first CERT advisory issued?
- A. BIND
  - B. Sendmail
  - C. wu-ftp
  - D. Apache

*B (6.4 Running Unix Applications Securely, page 110)*

95. Which of the following is a replacement MTA that can be used in place of Sendmail?
- A. Qmail
  - B. EWAN
  - C. WINE
  - D. none of the above

*A. (6.4 Running Unix Applications Securely, page 115)*

96. Which of the following is a good reason to disable spam checks on internal hosts?
- A. Spammers cannot use the host as a relay.
  - B. Spam will be unable to reach the internal users.
  - C. Internal mail may bounce.
  - D. Both A & B.

*C (6.4 Running Unix Applications Securely, page 120)*

97. Which hosts should run SMTP daemons?
- A. all internal hosts
  - B. all external hosts
  - C. any host which receives mail
  - D. any host which sends mail

*C (6.4 Running Unix Applications Securely, page 125)*

98. What information does Sendmail's relay-domains file contain?
- A. A list of domains from which mail may be accepted
  - B. A list of IP addresses to which to which mail may be relayed
  - C. A list of domains to which mail may be sent
  - D. A list of IP addresses from which mail may be relayed

*D. (6.4 Running Unix Applications Securely, page 118)*

99. What is required in order to use SSL for e-commerce?
- A. The Apache web server
  - B. A certificate from a recognized Certificate Authority
  - C. OpenSSL
  - D. All of the above

*B (6.4 Running Unix Applications Securely, page 59)*

100. Which entry in the Apache configuration forces Apache to only accept connections from the localhost?
- A. Listen 127.0.0.1:80
  - B. Accept 127.0.0.1:80
  - C. Server 127.0.0.1:80
  - D. Server localhost:80

*A (6.4 Running Unix Applications Securely, page 49)*

101. Which type of install is not an option when installing Red Hat Linux?
- A. Workstation
  - B. Server
  - C. Minimal
  - D. Custom

*C (6.5 Linux Practicum, page 7)*

102. Under Linux, how big of a partition should be reserved for logs?
- A. 25% of total disk
  - B. 100 MB
  - C. 50 MB
  - D. Depends on host's usage

*D (6.5 Linux Practicum, page 9)*

103. Which of these operating systems is not supported by Webmin?
- A. Irix
  - B. Linux
  - C. Unicos
  - D. Solaris

*C (6.5 Linux Practicum, page 16)*

104. Which of the following is not a system log message criticality level?
- A. emerg
  - B. crit
  - C. info
  - D. mesg

*D (6.5 Linux Practicum, page 30)*

105. What Red Hat program allows log files to be archived periodically?

- A. rotate
- B. logrotate
- C. rotatelog
- D. logarchive

*B (6.5 Linux Practicum, page 33)*

106. What is the current stable series of Linux kernels?

- A. 1.2.x
- B. 2.2.x
- C. 2.3.x
- D. 2.4.x

*B (6.5 Linux Practicum, page 42)*

107. What is the first command that should be issued when compiling a new kernel after it has been configured?

- A. make dep
- B. make clean
- C. make zlilo
- D. make modules

*A (6.5 Linux Practicum, page 46)*

108. What services should be removed from /etc/inetd.conf on a Linux workstation?

- A. BSD "r" commands"
- B. TFTP
- C. Finger
- D. All of them

*D (6.5 Linux Practicum, page 61)*

109. What is the default action for TCP wrappers if no rules are matched?

- A. It is service dependent.
- B. Access is allowed.
- C. Access is denied.
- D. There is no default, everything must have a matching rule.

*B (6.5 Linux Practicum, page 63)*

110. Which of the following daemons is usually started from within inetd.conf?

- A. httpd
- B. named
- C. nfsd
- D. ftpd

*D (6.5 Linux Practicum, page 65)*

111. Which command will list network ports that are listening for connections?

- A. `lsof -i +M`
- B. `netstat -at`
- C. either of the above
- D. none of the above

*C (6.5 Linux Practicum, pages 66-67)*

112. Which version of the print daemon does Red Hat provide by default?

- A. SYSV
- B. Proprietary
- C. LPRng
- D. BSD

*D (6.5 Linux Practicum, page 75)*

113. Which version of the print daemon does Debian provide by default?

- A. SYSV
- B. Proprietary
- C. LPRng
- D. BSD

*C (6.5 Linux Practicum, page 76)*

114. For what purpose is Samba used?

- A. Sharing files between Unix hosts
- B. Sharing files between MS Windows hosts
- C. Sharing files from a MS Windows host to an Unix host
- D. Sharing files from a Unix host to MS Windows hosts

*D (6.5 Linux Practicum, page 78)*

115. Which is not a security level that may be set for Samba?

- A. Directory
- B. Share
- C. User
- D. Domain

*A (6.5 Linux Practicum, page 81)*

116. How are null passwords indicated in /etc/smb.conf?
- A. A blank password field
  - B. A password field consisting of "NO PASSWORD" and 21 Xs
  - C. A password field consisting of "NO PASSWORD"
  - D. Null passwords are not allowed

*B (6.5 Linux Practicum, page 83)*

117. How are guest shares enabled in /etc/smb.conf?
- A. allow guest
  - B. set guest = yes
  - C. guest ok = yes
  - D. guest = ok

*C (6.5 Linux Practicum, page 84)*

118. What is the name of the packet firewall included with Linux?
- A. ipmasq
  - B. Checkpoint
  - C. ipnat
  - D. ipchains

*D (6.5 Linux Practicum, page 85)*

119. What is Bastille Linux?
- A. the French version of Linux
  - B. a set of Perl scripts for securing certain Linux distribution
  - C. a free Linux distribution
  - D. none of the above

*B (6.5 Linux Practicum, page 96)*

120. Which type of scan is not detected by PortSentry?
- A. ACK/WIN
  - B. FIN
  - C. NULL
  - D. SYN

*A (6.5 Linux Practicum, page 101)*

121. TARA is an upgrade to what security scanner?
- A. SATAN
  - B. COPS
  - C. TIGER
  - D. nmap

*C (6.5 Linux Practicum, page 103)*



122. Which of the following should be done before running a security scan on a network?
- A. Check company policy.
  - B. Test the scan in an isolated environment.
  - C. Notify system administrators.
  - D. All of the above

*D (6.5 Linux Practicum, page 105)*

123. SARA and SAINT are updated versions of what security scanner?
- A. SATAN
  - B. COPS
  - C. TIGER
  - D. nmap

*A (6.5 Linux Practicum, page 106)*

124. What program may be used to disable Red Hat Linux startup scripts?
- A. init
  - B. chkconfig
  - C. sysconfig
  - D. ifconfig

*B (6.5 Linux Practicum, page 68)*

125. Which of the following services should be run on a loghost?
- A. syslogd
  - B. nfsd
  - C. httpd
  - D. both A & C

*A (6.5 Linux Practicum, page 36)*

126. Which Solaris OS cluster choice should be used for a highly secure host?
- A. End-User
  - B. Developer
  - C. Full
  - D. Core System Support

*D (6.6 Solaris Practicum, page 1-17)*

127. Which command would be most effective in determining what file(s) an application needs in order to execute properly?

- A. `grep`
- B. `strings`
- C. `truss`
- D. `ls`

*C (6.6 Solaris Practicum, page 1-20)*

128. Which of the following Solaris packages need to be installed in order to display manual pages?

- A. SUNWlibC
- B. SUNWdoc
- C. SUNWman
- D. All of the above

*D (6.6 Solaris Practicum, page 1-22)*

129. Which of the following commands will prevent Solaris from forwarding packets?

- A. `ndd -set /dev/ip ip_forwarding 0`
- B. `ndd -set ip_send_redirects 0`
- C. `touch /etc/notrouter`
- D. both A & C

*D (6.6 Solaris Practicum, page 1-33)*

130. What effect does removing the line

```
sc:234:respawn:/usr/lib/saf/sac -t 300
```

from `/etc/inittab` have on a Solaris host?

- A. It has no effect.
- B. It disables `inetd`.
- C. It disables listening on serial ports.
- D. It disables system performance monitoring.

*C (6.6 Solaris Practicum, page 1-36)*

131. Which default crontab files should be removed?

- A. `adm`
- B. `lp`
- C. `sys`
- D. all of the above

*D (6.6 Solaris Practicum, page 1-37)*

132. What is the correct entry in Solaris's `/etc/resolv.conf` to if you are running a nameserver on a host with IP address 192.168.2.21?
- A. `dns 192.168.2.21`
  - B. `nameserver 192.168.2.21`
  - C. `named 192.168.2.21`
  - D. `bind 192.168.2.21`

*B (6.6 Solaris Practicum, page 1-39)*

133. Which of the following is true about filesystems mounted with the `nosuid` option?
- A. The root filesystem can be mounted `nosuid`.
  - B. They can have devices within them.
  - C. They can be read only.
  - D. Files cannot be created within them.

*C (6.6 Solaris Practicum, page 1-45)*

134. Which of the following is a drop-in replacement for the BSD "r" commands?
- A. Apache
  - B. SSH
  - C. TCP Wrappers
  - D. None of the above

*B (6.6 Solaris Practicum, page 1-49)*

135. Which of these methods should a user use to gain root privilege on a host?
- A. Telnet and log in as root
  - B. SSH and log in as root
  - C. `rlogin -l root`
  - D. Log in under user's own account and use `/bin/su`

*D (6.6 Solaris Practicum, page 1-62)*

136. Which of the following should be used as a shell for accounts which are not allowed to log in?
- A. `/dev/null`
  - B. `/dev/rand`
  - C. `/bin/true`
  - D. `/bin/false`

*A (6.6 Solaris Practicum, page 1-63)*

137. Which of the following lists syslog priorities in descending order of importance?
- A. emerg, alert, err, warning
  - B. emerg, crit, alert, notice
  - C. warning, info, notice, debug
  - D. crit, emerg, alert, warning

*A (6.6 Solaris Practicum, page 1-66)*

138. Which of the following is not an advantage of using syslog-ng over the default Solaris syslog daemon?
- A. Messages may be routed based on regular expressions.
  - B. Connections use TCP rather than UDP.
  - C. Syslog-ng provides more levels of log messages.
  - D. Loghosts may communicate with each other.

*C (6.6 Solaris Practicum, page 1-69)*

139. Where are Solaris system accounting files stored?
- A. /var/log
  - B. /var/adm/sa
  - C. /usr/etc/sa
  - D. /etc

*B (6.6 Solaris Practicum, page 1-70)*

140. What is the typical performance degradation caused by enabling process accounting?
- A. 10-20%
  - B. 20-30%
  - C. 30-40%
  - D. 40-50%

*A (6.6 Solaris Practicum, page 1-76)*

141. Which of the following entries in /etc/default/inetinit causes a modern Solaris system to use a better algorithm to generate TCP sequence numbers?
- A. TCP\_SEQUENCE = 2
  - B. TCP\_SEQUENCE = STRONG
  - C. TCP\_STRONG\_ISS = 2
  - D. TCP\_STRONG\_ISS = YES

*C (6.6 Solaris Practicum, page 1-79)*

142. What effect does setting CONSOLE in /etc/default/login have on a Solaris host?
- A. Users may only directly log in on the specified device.
  - B. It specifies which device to use as a console.
  - C. It specifies which devices may not act as consoles.
  - D. Root may only directly log in on the specified device.

*D (6.6 Solaris Practicum, page 1-80)*

143. What is not a possible setting for the eeprom password on Sun hardware?
- A. none
  - B. command
  - C. root
  - D. full

*C (6.6 Solaris Practicum, page 1-82)*

144. To which file should the lines
- ```
mount hsfs -o nosuid
mount ufs -o nosuid
```
- be added in order to prevent set-UID programs from being executed from removable media?
- A. /etc/vfstab
  - B. /etc/rmmount.conf
  - C. /etc/dfstab
  - D. /etc/vold.conf

*B (6.6 Solaris Practicum, page 1-84)*

145. Which of the following lines should be added to /etc/system to prevent some buffer overrun attacks?
- A. set noexec\_user\_stack = 1
  - B. set exec\_user\_stack = 0
  - C. set noexec\_user\_attack\_log = 1
  - D. set exec\_user\_attack\_log = 0

*A (6.6 Solaris Practicum, page 1-85)*

146. Which of the following is not a tool used for securing Solaris systems?
- A. YASSP
  - B. TITAN
  - C. Bastille
  - D. fix-modes

*C (6.6 Solaris Practicum, pages 1-104 - 1-111)*

147. Which of the following is not a new Solaris feature first included in version 8?
- A. IPSEC
  - B. Smart Card support
  - C. UFS logging
  - D. Role-based access control

*C (6.6 Solaris Practicum, page 1-117)*

148. Which of the following should not be allowed on a secure host?
- A. Networked backups
  - B. Remote log in as root
  - C. Packet forwarding
  - D. All of the above

*D (6.6 Solaris Practicum, pages 1-33, 1-66, 1-98)*

149. Which application is not as likely to be run in a `chroot()` ed environment?
- A. Web servers
  - B. FTP servers
  - C. Telnet servers
  - D. Name servers

*C (6.6 Solaris Practicum, page 1-45)*

150. Which of the following startup scripts should not be removed when securing a Solaris 2.5 system?
- A. S73nfs.client
  - B. S76nsd
  - C. S74autofs
  - D. S72sysid.net

*B (6.6 Solaris Practicum, page 1-27)*

151. Which of the following depend on accurate timekeeping?
- A. Log files
  - B. One time passwords
  - C. Distributed software development
  - D. All of the above

*D (Unix@Night: Network Time Protocol, page 5)*

152. How is the global DNS database organized?

- A. Distributed and hierarchical
- B. Centralized and hierarchical
- C. Distributed and flat
- D. Centralized and flat

*A (Unix@Night: Network Time Protocol, page 9)*

153. What is the name for an NTP server that synchronizes against an external time source?

- A. Secondary
- B. Primary
- C. Master
- D. Slave

*B (Unix@Night: Network Time Protocol, page 9)*

154. What is the NTP stratum of a host which is not connected to a network?

- A. 1
- B. 2
- C. 12
- D. 16

*D (Unix@Night: Network Time Protocol, page 11)*

155. How does a site defend against an attacker skewing the system clocks during synchronization?

- A. Block connections at the firewall
- B. Require all connections to use SSH
- C. Synchronize against multiple NTP servers
- D. Disable BSD "r" commands

*C (Unix@Night: Network Time Protocol, page 13)*

156. What is a pseudo-clock?

- A. An NTP server which synchronizes to its internal clock
- B. An NTP server which has not properly calculated its own drift
- C. An NTP server which synchronizes to only one external source
- D. An NTP client which also acts as a server

*A (Unix@Night: Network Time Protocol, page 19)*

157. Why should time update broadcasts not be used?
- A. Lack of accuracy
  - B. Unreliability of transmission
  - C. No significant bandwidth savings
  - D. All of the above

*D (Unix@Night: Network Time Protocol, page 22)*

158. Which of the following programs are required in order to run an NTP server?
- A. ntpdate
  - B. tickadj
  - C. xntpd
  - D. None of the above

*C (Unix@Night: Network Time Protocol, page 25)*

159. Which of the following features first appeared in NTP v3?
- A. Support for intermittently connected hosts
  - B. Multicast support
  - C. Symmetric key authentication
  - D. Public key authentication

*C (Unix@Night: Network Time Protocol, page 7)*

160. What is the stratum of a host which has available to it for synchronization four unique NTP servers at strata 2, 3, 5, and 8?
- A. 1
  - B. 2
  - C. 3
  - D. 8

*C (Unix@Night: Network Time Protocol, page 11)*

161. Which of the following protocols is not used by SSH for link encryption?
- A. IDEA
  - B. RSA
  - C. DES
  - D. Blowfish

*B (Unix@Night: Secure Shell (SSH), page 5)*



162. Which of the following is not supported by SSH v1?

- A. Kerberos
- B. SOCKS
- C. SecurID
- D. TCP Wrappers banners

*D (Unix@Night: Secure Shell (SSH), pages 7, 41)*

163. For which of the following commands is SSH not a drop-in replacement?

- A. rdist
- B. rlogin
- C. rcp
- D. rsh

*A (Unix@Night: Secure Shell (SSH), page 22)*

164. What is default size of the SSH server key?

- A. 64 bits
- B. 128 bits
- C. 768 bits
- D. 1024 bits

*C (Unix@Night: Secure Shell (SSH), page 32)*

165. What method does SSH use to secure X11 connections?

- A. RSA
- B. xhost
- C. IDEA
- D. xauthority

*D (Unix@Night: Secure Shell (SSH), page 46)*

166. Support for which of the following is being introduced in SSH v2?

- A. Diffie-Hellman key exchange
- B. DSA support
- C. Secure DNS
- D. Secure FTP

*D (Unix@Night: Secure Shell (SSH), page 54)*

167. What option needs to be set in SSH's `authorized_keys` file in order to disable support for X Windows?
- A. `no-X11-forwarding`
  - B. `no-Xwindows-forwarding`
  - C. `no-agent-forwarding`
  - D. `no-port-forwarding`

*A (Unix@Night: Secure Shell (SSH), page 38)*

168. Which of these is not a valid choice for the `PermitRootLogin` option when configuring `sshd`?
- A. `yes`
  - B. `no`
  - C. `nopwd`
  - D. `pwdrequired`

*D (Unix@Night: Secure Shell (SSH), page 34)*

169. Why should `sshd` not be run from `inetd`?
- A. It cannot be run from `inetd`.
  - B. Startup is delayed by key generation.
  - C. `inetd` does not allow secure connections to succeed.
  - D. `sshd` will not encrypt sessions started via `inetd`.

*B (Unix@Night: Secure Shell (SSH), page 24)*

170. Which of the following commands forwards requests from remote port 1999 on `remote.domain.com` to an internal webserver (`www.me.com`) when the user is connected via SSH to `remote.domain.com` from `login.me.com`?
- A. `ssh -L 1999:remote.domain.com:80 login.me.com`
  - B. `ssh -L 1999:remote.domain.com:80 www.me.com`
  - C. `ssh -R 1999:www.me.com:80 login.me.com`
  - D. `ssh -R 80:remote.domain.com:1999 www.me.com`

*C (Unix@Night: Secure Shell (SSH), page 15)*

171. Which of the following is not a vulnerability of standard Unix passwords?
- A. Packet sniffers may capture them
  - B. Enciphered passwords may be viewed and cracked.
  - C. The eight character length does not allow for enough permutations.
  - D. The password encryption algorithm is weak.

*D (Unix@Night: One-Time Passwords, page 4)*

172. What are the two factors of authentication used by most one-time password systems?
- A. Something you know and something you are
  - B. Something you have and something you are
  - C. Something you have and something you know
  - D. Something you know and something you do

*C (Unix@Night: One-Time Passwords, page 7)*

173. Which of the following is a freely available one-time password implementation?
- A. OPIE
  - B. SecurID
  - C. CryptoCard
  - D. SafeWord

*A (Unix@Night: One-Time Passwords, page 11)*

174. Which of the following is not stored in the opiekeys file?
- A. User's secret code
  - B. Next challenge
  - C. Random seed
  - D. Counter

*B (Unix@Night: One-Time Passwords, page 17)*

175. Which of the following binaries is not replaced when OPIE is installed?
- A. login
  - B. ftp
  - C. su
  - D. telnet

*D (Unix@Night: One-Time Passwords, page 18)*

176. Which of these is not an ongoing support issue when using a commercial one-time password system?
- A. Re-issuing tokens
  - B. Creating secret identifiers for each user
  - C. Upgrading the one-time password software
  - D. Upgrading the operating system of the one-time password authentication server

*B (Unix@Night: One-Time Passwords, page 31)*

177. What factors should be examined when considering a one-time password token system?
- A. Ease of use
  - B. Software token availability
  - C. Expiration
  - D. All of the above

*D (Unix@Night: One-Time Passwords, page 34)*

178. How can a one-time password system be compromised?
- A. Brute force attack after capturing a challenge and corresponding response
  - B. "Shoulder surfing" to steal a user's secret and acquiring the user's token
  - C. Either of the above
  - D. None of the above

*C (Unix@Night: One-Time Passwords, page 6)*

179. Which of the following lists classes of two factor devices?
- A. Challenge and Response
  - B. Challenge/Response and Synchronous
  - C. Synchronous and Asynchronous
  - D. Hardware and Software

*B (Unix@Night: One-Time Passwords, page 8)*

180. When using a public key authentication system, where should the secret key not be stored?
- A. On a smart card
  - B. On a removable disk
  - C. On a shared filesystem
  - D. None of the above are acceptable places to store a secret key

*C (Unix@Night: One-Time Passwords, page 10)*

181. What encryption algorithm is used by Kerberos?
- A. RSA
  - B. Diffie-Hellman
  - C. IDEA
  - D. DES

*D (Unix@Night: Kerberos, page 3)*

182. Which portion of the Kerberos system is often referred to as the "Kerberos server?"
- A. Key Distribution Center
  - B. Authentication Server
  - C. Ticket Granting Server
  - D. Application Server

*A (Unix@Night: Kerberos, page 5)*

183. Which of the following is not required for use of Kerberos?
- A. NTP
  - B. DNS
  - C. NIS
  - D. KDC

*C (Unix@Night: Kerberos, page 7)*

184. In the Kerberos world, what is a “principal?”
- A. A user
  - B. A service
  - C. A password
  - D. Either A or B

*D (Unix@Night: Kerberos, page 8)*

185. Which of the following is not a part of a Kerberos ticket?
- A. Client Principal
  - B. User’s passphrase
  - C. Server Principal
  - D. Expiration time

*B (Unix@Night: Kerberos, page 13)*

186. What is the first step in Kerberos authentication?
- A. Request for server ticket
  - B. Request for service
  - C. Request for Ticket-Granting Ticket
  - D. Request for authentication

*C (Unix@Night: Kerberos, page 14)*

187. What is the term for a collection of systems serviced by a KDC?
- A. Realm
  - B. Domain
  - C. Kerb
  - D. Room

*A (Unix@Night: Kerberos, page 26)*

188. Which of the following is prevented by Kerberos?
- A. Denial of service
  - B. Password guessing
  - C. Misuse of privilege
  - D. Password sniffing

*D (Unix@Night: Kerberos, page 40)*

189. Who developed the key distribution model used by Kerberos?

- A. Diffie and Hellman
- B. Rivest, Shamir, and Adleman
- C. Needham and Schroeder
- D. Farmer and Spafford

*C (Unix@Night: Kerberos, page 3)*

190. Which portion of the Kerberos system is responsible for verifying a user's identity?

- A. Key Distribution Center
- B. Ticket Granting Service
- C. Ticket Granting Ticket
- D. Authentication Server

*B (Unix@Night: Kerberos, page 5)*

191. Which is not one of John Green's "Four Steps of Forensics?"

- A. Preparation
- B. Collection and Handling
- C. Event Reconstruction
- D. Prevention

*D (Unix@Night: Unix Forensics, page 3)*

192. Which of the following tool sets should be included in a system analysis toolkit?

- A. who, w, finger
- B. netstat, lsof
- C. chown, chgrp, chmod
- D. All of the above

*D (Unix@Night: Unix Forensics, page 24)*

193. Which information on a host is most volatile and should therefore be collected first?

- A. Memory contents
- B. Disk contents
- C. Process status
- D. Network connection status

*A (Unix@Night: Unix Forensics, page 36)*

194. What command can be used to record actions taken during an investigation of a compromise?
- A. truss
  - B. lsof
  - C. script
  - D. write

*C (Unix@Night: Unix Forensics, page 39)*

195. Which of the following commands can be used to determine if a sniffer is running on a host?
- A. lsof
  - B. ifconfig
  - C. netstat
  - D. tcpdump

*B (Unix@Night: Unix Forensics, page 46)*

196. Which of the following is not a package for tracking and accessing file integrity?
- A. Tripwire
  - B. Sherpa
  - C. RIACS
  - D. Logcheck

*D (Unix@Night: Unix Forensics, page 57)*

197. Which log file contains a list of the users currently logged in?
- A. utmp
  - B. wtmp
  - C. loginlog
  - D. messages

*A (Unix@Night: Unix Forensics, page 74)*

198. After an attack, what type of files should be searched for?
- A. Newly created data files
  - B. SUID files
  - C. Executable files
  - D. Root owned files

*B (Unix@Night: Unix Forensics, page 88)*

199. What command is used to find unlinked, but still open files?

- A. `ls -O`
- B. `ls -l`
- C. `ls -l +L1`
- D. `ls -l -O`

*C (Unix@Night: Unix Forensics, page 90)*

200. Which of the following binaries are replaced by the lrk5 rootkit for Linux?

- A. `ps`
- B. `passwd`
- C. `ls -l`
- D. All of the above

*D (Unix@Night: Unix Forensics, page 14)*

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