

LINUX OPERATING SYSTEM FUNDAMENTALS-PILOT (350)

REGIONAL – 2020

TOTAL POINTS (50 @ 10pts)

_____ *(500 points)*

Failure to adhere to any of the following rules will result in disqualification:

- 1. Contestant must hand in this test booklet and all printouts. Failure to do so will result in disqualification.**
- 2. No equipment, supplies, or materials other than those specified for this event are allowed in the testing area. No previous BPA tests and/or sample tests or facsimile (handwritten, photocopied, or keyed) are allowed in the testing area.**
- 3. Electronic devices will be monitored according to ACT standards.**

No more than sixty (60) minutes testing time

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1. Which of the following is the standard shell for MOST Linux computers?
 - a) Bourne-again shell (bash)
 - b) Bourne shell
 - c) C-shell
 - d) tcsh

2. Which of the following commands sorts the contents of the **wordlist1** and **wordlist2** files and sends the result to standard output?
 - a) `cat /usr/wordlist1 /usr/wordlist2 | sort`
 - b) `cat /usr/wordlist1 > /usr/wordlist2 | sort`
 - c) `cat /usr/wordlist1 | /usr/wordlist2 | sort`
 - d) `cat /usr/wordlist1 >> /usr/wordlist2 | tee`

3. Joe, a bash script developer, is trying to debug a shell script named **myscript**. Which of the following commands would record the output of the script in a text file?
 - a) `echo myscript >> testfile.txt`
 - b) `myscript | testfile.txt`
 - c) `myscript >> testfile.txt`
 - d) `myscript | echo | testfile.txt`

4. Which of the following commands displays an expanded listing that includes the owner and size of all the files in the `/etc` directory?
 - a) `dir -al /etc`
 - b) `ld -ae /etc`
 - c) `ls -al /etc`
 - d) `ls -ae /etc`

5. Which of the following commands will move a file from one location to another?
 - a) `move`
 - b) `mv`
 - c) `copy -r`
 - d) `cp -d`

6. Which of the following utilities displays the category of a command?
 - a) `type`
 - b) `whereis`
 - c) `which`
 - d) `find`

7. Which of the following utilities will substitute an existing string with a new string within a file?

- a) grep
- b) sed
- c) egrep
- d) fgrep

8. Which of the following has a process ID (PID) of 1?

- a) The initial process
- b) The boot loader
- c) The OS kernel
- d) The BIOS

9. Which of the following is responsible for bringing up other units and services when boot targets are changed?

- a) service
- b) init
- c) systemctl
- d) systemd

10. You need to shut down the system immediately and send a message to logged in users to allow running processes to close gracefully. Which of the following is the BEST to use?

- a) shutdown -h now
- b) shutdown -s
- c) shutdown -m now
- d) shutdown -r

11. Which of the following desktops is the default for many Linux distributions, such as Fedora and Ubuntu?

- a) KDE
- b) MATE
- c) Unity
- d) GNOME

12. Which of the following users MOST benefit from the sticky keys accessibility option?

- a) Users who have difficulty pressing multiple keys at the same time.
- b) Users who press single keys multiple times by accident.
- c) Users who press and hold down keys by accident.
- d) Users who need a tactile representation of the keys.

13. Which of the following **yum** options will display whether updates are available for RPM packages?

- a) install
- b) list
- c) list updates
- d) update

14. You need to remove an RPM package from your system. Which of the following commands could you use?

- a) yum erase
- b) yum delete
- c) yum provides
- d) yum search

15. Which of the following Debian package management utilities provides the front end for APT?

- a) apt-get
- b) aptitude
- c) apt-cache
- d) dpkg

16. Which of the following statements are true regarding the **apt-get** utility?

- a) apt-get is not similar to the yum utility on an RPM distribution.
- b) apt-get uses /etc/apt/sources.list to find information about the application repositories.
- c) apt-get installs packages on an RPM distribution.
- d) apt-get uses /var/lib/rpm to find information about the application repositories.

17. During installation, you must create a root user account for the system. Which of the following user account number does this account use?

- a) 0
- b) 1
- c) 10
- d) 100

18. During a Fedora distribution installation, you choose to add a regular user account. The only other user that has been added to the system was root. Which of the following user IDs is MOST likely to be associated with the new user?

- a) 0
- b) 1
- c) 2
- d) 1000

19. In the `/etc/shadow` file, which character in the password field indicates that the password is an encrypted entry?

- a) !
- b) *
- c) \$
- d) !!

20. Which of the following utilities would you typically use to lock a user account?

- a) `passwd`
- b) `usrrmod`
- c) `useradd`
- d) `userdel`

21. Which of the following is the maximum number logical partitions allowed on an extended partition?

- a) 1
- b) 2
- c) 4
- d) Unlimited

22. Which of the following is the maximum number of GUID partitions that can be created using the `gdisk` utility?

- a) 128
- b) 64
- c) 32
- d) 8

23. You have performed an audit and have found active accounts for employees who no longer work for the company. You want to disable those accounts. Which command example will disable a user account?

- a) `usermod -l joer`
- b) `usermod -L joer`
- c) `usermod -d joer`
- d) `usermod -u joer`

24. Which of the following Linux file systems support journaling?

- a) `ext2`
- b) `swap`
- c) `VFAT`
- d) `ext4`

25. Which of the following commands will open the quota file for a specific user?

- a) quota -u
- b) repquota -u
- c) edquota -u
- d) quotaon -u

26. You use **ls -l /home/sales/sales_projection_q2** and get this information:

```
drwxr-xr-x 22 pclark acct 4096 Jun 19 15:01 sales_projection_q2
```

Which of the following commands will change the user owner to *jyoung* and the group owner to *sales*?

- a) chown jyoung:sales /home/sales/sales_projection_q2
- b) chown jyoung sales /home/sales/sales_projection_q2
- c) chmod jyoung:sales /home/sales/sales_projection_q2
- d) chgrp jyoung:sales /home/sales/sales_projection_q2

27. Which of the following special permissions prevents a file's deletion by anyone except the file's owner?

- a) SUID
- b) Sticky bit
- c) SGID
- d) Umask

28. Which utility allows you to make an exact copy of a file?

- a) dd
- b) cp
- c) tar
- d) cpio

29. Which of the following represent a typical Linux backup type?

- a) Asynchronous
- b) Partial
- c) Tarball
- d) Incremental

30. As a network administrator, you have had several users ask for a way in which they could connect their phones to their Linux computer, without the use of wires. Which of the following device types would BEST meet these user's needs?

- a) USB
- b) GPIO
- c) Bluetooth
- d) PCI

31. Which of the following devices is a hotplug device?

- a) RAM (Random Access Memory) chips
- b) CPU (Central Processing Unit)
- c) PCI Express cards
- d) USB flash drives

32. Which command would you use to look for a potential resource hog on a workstation?

- a) top
- b) renice
- c) free
- d) uptime

33. While editing a script using gedit, you discover that you no longer have access to your current terminal session and need to check the values of some variables the script is using. Which of the following commands will send the gedit process to the background so you can regain access to the current terminal?

- a) Ctrl+C
- b) Ctrl+Z
- c) Ctrl+Alt+F2
- d) bg

34. A developer calls you with a problem. She was trying to debug a new daemon and mistakenly placed it on the production machine instead of on a lab machine. It has now entered runaway mode. The PID number is 2345. She attempted to stop the process with the standard **kill** command, but it had no effect. Which command would you use to assure that the process will terminate?

- a) kill 2345 -NOW
- b) kill -NOW 2345
- c) kill 2345 -9
- d) kill -9 2345

35. Which of the following commands removes all files from the print queue?

- a) lpc status
- b) lpc clean
- c) lpc clear
- d) lpc remove

36. For what purpose would you edit the `/etc/localtime` file?

- a) Set the current time zone.
- b) Set the hardware clock time.
- c) Set the system date and time.
- d) Change the value of the time zone (TZ) environment variable.

37. You have a large TCP/IP network and want to keep hosts' real time clocks synchronized. Which protocol should you use?

- a) SNMP
- b) SMTP
- c) NTP
- d) NNTP

38. Which of the following commands produced this output?

```
06:14:11 up 139 days, 24 min, 5 users, load average: 0.12, 0.33, 0.48
```

- a) uptime
- b) w
- c) top
- d) ps

39. Which of the following protocols allows hosts to exchange messages to indicate problems with packet delivery?

- a) IGMP
- b) DHCP
- c) ARP
- d) ICMP

40. Which of the following network services or protocols uses TCP/IP port 22?

- a) SSH
- b) TFTP
- c) NNTP
- d) IMAP4

41. Which of the following configuration files holds the name of the host?

- a) /etc/hosts
- b) /etc/hostname
- c) /etc/networks
- d) .rhosts

42. Which utility would you use to view current connections and active sessions and ports on a computer?

- a) ipconfig
- b) netstat
- c) nslookup
- d) ip route

43. A script named **myscript** contains the following command line:

```
echo $1 $2 $3
```

The following command is typed in an interactive shell.

```
myscript dog cat bird frog
```

Which of the following will be displayed in the interactive shell?

- a) dog cat bird frog
- b) dog
- c) dog cat bird
- d) frog bird cat

44. You have logged in as a regular user when a frantic phone call comes in. The ABCD process must be started on the server now, but can only be run by root. Which command would you use to start this process?

- a) su ABCD
- b) sudo ABCD
- c) exit ABCD
- d) ABCD /root

45. Your site is dependent upon the use of the rlogin utility for remote access. For security reasons, you want to prevent the hosts in the marketing department from accessing the payroll server, but allow all others to do so. Which of the following files should you use to create this restriction?

- a) hosts
- b) hosts.allow
- c) hosts.deny
- d) hostname

46. Which of the following commands should a Linux user enter to see a list of all the commands the user recently ran at the command prompt?

- a) history
- b) clear
- c) chsh
- d) uname

47. Two users should have identical settings, yet one is having problems with the display on his screen, and you suspect there is a difference in their environment variables. Which of the following commands displays all of the environment variables?

- a) echo
- b) display
- c) print
- d) env

48. Which of the following commands would allow you to see whether a remote computer is reachable?

- a) ifconfig
- b) netstat
- c) ping
- d) ip addr ping

49. Which of the following is displayed when the **uname -a** command is run?

- a) All system information
- b) The current working directory
- c) The current username
- d) The names of files and directories in the current directory

50. After a severe lightning strike nearby, a number of processes seem to be running on the server in runaway mode. Which utility terminates these processes by name, and not just by process ID number?

- a) down
- b) endall
- c) killall
- d) closeproc