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Sections

1. Shells, Scripting and Data Management
2. User Interfaces and Desktops
3. Administrative Tasks
4. Essential System Services
5. Networking Fundamentals
6. Security

Exam A

QUESTION 1
What output will the following command sequence produce?

```
echo '1 2 3 4 5 6' | while read a b c; do
   echo result: $c $b $a;
done
```

A. result: 3 4 5 6 2 1
B. result: 1 2 3 4 5 6
C. result: 6 5 4
D. result: 6 5 4 3 2 1
E. result: 3 2 1

Correct Answer: A
Section: Shells, Scripting and Data Management
Explanation

Explanation/Reference:

QUESTION 2
Which command makes the shell variable named VARIABLE visible to subshells?

A. export $VARIABLE
B. export VARIABLE
C. set $VARIABLE
D. set VARIABLE
E. env VARIABLE

Correct Answer: B
Section: Shells, Scripting and Data Management
Explanation

Explanation/Reference:

QUESTION 3
What output will the command `seq 10` produce?

A. A continuous stream of numbers increasing in increments of 10 until stopped.
B. The numbers 1 through 10 with one number per line.
C. The numbers 0 through 9 with one number per line.
D. The number 10 to standard output.

Correct Answer: B
Section: Shells, Scripting and Data Management
Explanation

Explanation/Reference:

QUESTION 4
After issuing:

```
function myfunction { echo $1 $2 ; }
```

in Bash, which output does:

```
myfunction A B C
```

produce?

A. A B
B. A B C
C. A C
D. B C
E. C B A

Correct Answer: A

Section: Shells, Scripting and Data Management
Explanation

Explanation/Reference:

QUESTION 5
Which of the following commands puts the output of the command date into the shell variable `mydate`?

A. `mydate="$(date)"`
B. `mydate="exec date"`
C. `mydate="$((date))"`
D. `mydate="date"`
E. `mydate="${date}"`

Correct Answer: A
Section: Shells, Scripting and Data Management
Explanation

Explanation/Reference:

QUESTION 6
What is the difference between the commands test -e path and test -f path?

A. They are equivalent options with the same behaviour.
B. The -f option tests for a regular file. The -e option tests for an empty file.
C. Both options check the existence of the path. The -f option also confirms that it is a regular file.
D. The -f option tests for a regular file. The -e option tests for an executable file.

Correct Answer: C
Section: Shells, Scripting and Data Management
Explanation

Explanation/Reference:

QUESTION 7
When the command `echo $$` outputs `12942`, what is the meaning of 12942?

A. It is the process ID of the echo command.

B. It is the process ID of the current shell.

C. It is the process ID of the last command executed.

D. It is the process ID of the last command which has been placed in the background.

Correct Answer: B
Section: Shells, Scripting and Data Management
Explanation

Explanation/Reference:

QUESTION 8
What output will the following command produce?

```
seq 1 5 20
```

A. 1
   6
   1
   1
   1
   6
B. 1
   5
   10
   15
C. 1
   2
   3
   4
D. 2
   3
   4
   5
E. 5
   10
   15
   20

Correct Answer: A
Section: Shells, Scripting and Data Management
Explanation

Explanation/Reference:

QUESTION 9
Which of the following commands lists all defined variables and functions within Bash?

A. env
B. set
C. env -a
D. echo $ENV

Correct Answer: B
Section: Shells, Scripting and Data Management
Explanation

Explanation/Reference:

QUESTION 10
What is the purpose of the file `/etc/profile`?

A. It contains the welcome message that is displayed after login.
B. It contains security profiles defining which users are allowed to log in.
C. It contains environment variables that are set when a user logs in.
D. It contains default application profiles for users that run an application for the first time.

Correct Answer: C
Section: Shells, Scripting and Data Management
Explanation

Explanation/Reference:

QUESTION 11
Which of the following are requirements in order to run a shell script like a regular command from anywhere in the filesystem? (Choose three.)

A. The user issuing the command must be in the group script.

B. The script file must be found in the $PATH.

C. The script file must have the executable permission bit set.

D. The script must begin with a shebang-line (#!) that points to the correct interpreter.

E. The file system on which the script resides must be mounted with the option scripts.

Correct Answer: BCD
Section: Shells, Scripting and Data Management
Explanation

Explanation/Reference:

QUESTION 12
Which file used by XDM specifies the default wallpaper?

A. /etc/X11/xdm/Xsetup

B. /etc/X11/xdm.conf

C. /etc/X11/xdm/Defaults

D. /etc/X11/defaults.conf

Correct Answer: A
Section: User Interfaces and Desktops
Explanation

Explanation/Reference:

QUESTION 13
The X11 configuration file xorg.conf is grouped into sections. How is the content of the section SectionName associated with that section?

A. It is placed in curly brackets as in `Section SectionName { ... }`.

B. It is placed between a line containing `Section "SectionName"` and a line containing `EndSection`.

C. It is placed between the tags `<Section name="SectionName">` and `</Section>`

D. It is placed after the row `[SectionName]`.

E. It is placed after an initial unindented Section `"SectionName"` and must be indented by exactly one tab character.

Correct Answer: B

QUESTION 14
What is the purpose of a screen reader?

A. It reads text displayed on the screen to blind or visually impaired people.
B. It reads the parameters of the attached monitors and creates an appropriate X11 configuration.
C. It displays lines and markers to help people use speed reading techniques.
D. It manages and displays files that contain e-books.

Correct Answer: A
Section: User Interfaces and Desktops
Explanation

Explanation/Reference:

QUESTION 15
How is a display manager started?

A. It is started by a user using the command startx.
B. It is started like any other system service by the init system.
C. It is started by inetd when a remote hosts connects to the X11 port.
D. It is started automatically when a X11 user logs in to the system console.

Correct Answer: B
Section: User Interfaces and Desktops
Explanation

Explanation/Reference:

QUESTION 16
Which of the following commands shows the current color depth of the X Server?

A. xcd

B. xcdepth

C. xwininfo

D. xcolordepth

E. cat /etc/X11

Correct Answer: C
Section: User Interfaces and Desktops
Explanation

Explanation/Reference:

QUESTION 17
Which of the following are tasks handled by a display manager like XDM or KDM? (Choose two.)

A. Start and prepare the desktop environment for the user.

B. Configure additional devices like new monitors or projectors when they are attached.

C. Handle the login of a user.

D. Lock the screen when the user was inactive for a configurable amount of time.

E. Create an X11 configuration file for the current graphic devices and monitors.

Correct Answer: AC
Section: User Interfaces and Desktops
Explanation

Explanation/Reference:

QUESTION 18
Which of the following steps prevents a user from obtaining an interactive login session?

A. Run the command `chsh -s /bin/false` with the user name.

B. Set the UID for the user to 0.

C. Remove the user from the group staff.

D. Add the user to `/etc/noaccess`.

E. Create a `.nologin` file in the user's home directory.

Correct Answer: A
Section: Administrative Tasks

Explanation

Explanation/Reference:

QUESTION 19
Which character in the password field of `/etc/passwd` is used to indicate that the encrypted password is stored in `/etc/shadow`?

A. *
B. -
C. s
D. x

Correct Answer: D
Section: Administrative Tasks
Explanation

Explanation/Reference:

QUESTION 20
Which of the following fields are available in both the global `/etc/crontab` file as well as in user-specific `crontab` files? (Select TWO correct answers)

A. Year
B. Minute
C. Username
D. Command

Correct Answer: BD
Section: Administrative Tasks
Explanation

Explanation/Reference:

QUESTION 21
Which command can be used to delete a group from a Linux system?

A. groupdel

B. groupmod
C. groups
D. groupedit

Correct Answer: A
Section: Administrative Tasks
Explanation

Explanation/Reference:

QUESTION 22
What is the purpose of the `iconv` command?

A. It converts bitmap images from one format to another such as PNG to JPEG.
B. It verifies that the root directory tree complies to all conventions from the Filesystem Hierarchy Standard (FHS).
C. It displays additional meta information from icon files ending in .ico.
D. It changes the mode of an inode in the ext4 file system.
E. It converts files from one character encoding to another.

Correct Answer: E
Section: Administrative Tasks
Explanation

Explanation/Reference:

QUESTION 23
In case neither `cron.allow` nor `cron.deny` exist in `/etc/`, which of the following is true?

A. Without additional configuration, no users may have user specific crontabs.
B. Without additional configuration, all users may have user specific crontabs.
C. The cron daemon will refuse to start and report missing files in the system's logfile.
D. When a user creates a user specific crontab the system administrator must approve it explicitly.

Correct Answer: A
Section: Administrative Tasks
Explanation

Explanation/Reference:

QUESTION 24
Which of the following commands can remove a user from a group?

A. grouprm
B. groupmod
C. passwd
D. usergroups
E. usermod

Correct Answer: E
Section: Administrative Tasks
Explanation

Explanation/Reference:

QUESTION 25
Where are user specific `crontabs` stored?

A. In the database file `/etc/crontab.db` which is shared by all users.
B. As individual per-user files within `/var/spool/cron`.
C. As individual per-user files in `/etc/cron.user.d`.
D. In the `.crontab` file in the user's home directory.
E. In the file `/var/cron/user-crontab` which is shared by all users.

Correct Answer: B
Section: Administrative Tasks
Explanation

Explanation/Reference:

QUESTION 26
Which file contains the date of the last change of a user's password?

A. /etc/gshadow

B. /etc/passwd
C. /etc/pwdlog
D. /etc/shadow
E. /var/log/shadow

Correct Answer: D
Section: Administrative Tasks
Explanation

Explanation/Reference:

QUESTION 27
Each entry in a `crontab` must end with what character?

A. Tab
B. Space
C. Backslash
D. Newline

Correct Answer: D
Section: Administrative Tasks
Explanation

Explanation/Reference:

QUESTION 28
To prevent a specific user from scheduling tasks with at, what should the administrator do?

A. Add the specific user to `/etc/at.allow` file.
B. Add the specific user to `[deny]` section in the `/etc/atd.conf` file.
C. Add the specific user to `/etc/at.deny` file.
D. Add the specific user to `nojobs` group.
E. Run the following: `atd --deny [user]`.

Correct Answer: C
Section: Administrative Tasks
Explanation

Explanation/Reference:

QUESTION 29
Which of the following files assigns a user to its primary group?

A. /etc/pgroup
B. /etc/shadow
C. /etc/group
D. /etc/passwd
E. /etc/gshadow

Correct Answer: D
Section: Administrative Tasks
Explanation

Explanation/Reference:

QUESTION 30
Which of the following commands should be added to `/etc/bash_profile` in order to change the language of messages for an internationalized program to Portuguese (pt)?

A. export LANGUAGE="pt"
B. export MESSAGE="pt"
C. export UI_MESSAGES="pt"
D. export LC_MESSAGES="pt"
E. export ALL_MESSAGES="pt"

Correct Answer: D
Section: Administrative Tasks
Explanation

Explanation/Reference:

QUESTION 31
Which commands can be used to change a user's account aging information? (Choose three.)

A. usermod

B. passwd

C. chattr

D. chage

E. chsh

Correct Answer: ABD
Section: Administrative Tasks
Explanation

Explanation/Reference:

QUESTION 32
What is NOT contained in the locale setting of the operating system?

A. currency symbol

B. language

C. timezone

D. thousands separator

Correct Answer: C
Section: Administrative Tasks
Explanation

Explanation/Reference:

QUESTION 33
What is true regarding the command `userdel --force --remove bob`? (Choose two.)

A. The user bob is removed from the system's user database.

B. The user bob's home directory is removed.

C. The locate database is updated to drop files owned by bob.

D. All files owned by bob are remove from all mounted filesystems.

E. In case bob was the last member of a group, that group is deleted.

Correct Answer: AB

QUESTION 34
Which of the following fields can be found in the `/etc/group` file? (Choose three.)

A. The list of users that belong to the group.
B. The home directory of the group.
C. The name of the group.
D. The description of the group.
E. The password of the group.

Correct Answer: ACE
Section: Administrative Tasks
Explanation

Explanation/Reference:

QUESTION 35
Which of the following tasks can be accomplished using the command date? (Choose two.)

A. Synchronize the hardware and system clocks.
B. Output date and time in different formats.
C. Set the system clock.
D. Set the hardware clock.
E. Update the time via NTP.

Correct Answer: BC
Section: Essential System Services
Explanation

Explanation/Reference:

QUESTION 36

Which of the following are syslog facilities? (Choose two.)

A. local7
B. mail
C. advanced
D. postmaster
E. remote

Correct Answer: AB
Section: Essential System Services
Explanation

Explanation/Reference:

QUESTION 37
What is the purpose of the command `mailq`?

A. It fetches new emails from a remote server using POP3 or IMAP.
B. It is a multi-user mailing list manager.
C. It is a proprietary tool contained only in the qmail MTA.
D. It queries the mail queue of the local MTA.
E. It is a command-line based tool for reading and writing emails.

Correct Answer: D
Section: Essential System Services
Explanation

Explanation/Reference:

QUESTION 38
Why is the correct configuration of a system's time zone important?

A. Because the conversion of Unix timestamps to local time relies on the time zone configuration.
B. Because the time zone is saved as part of the modification times of files and cannot be changed after a file is created.
C. Because the environment variables LANG and LC_MESSAGES are, by default, set according to the time zone.
D. Because NTP chooses servers nearby based on the configured time zone.

Correct Answer: A
Section: Essential System Services
Explanation

Explanation/Reference:

QUESTION 39
Which of the following parameters are used for `journalctl` to limit the time frame of the output? (Choose two.)

A. --from=

B. --since=

C. --until=

D. --upto=

E. --date=

Correct Answer: BC
Section: Essential System Services
Explanation

Explanation/Reference:

QUESTION 40
Which of the following are commonly used Mail Transfer Agent (MTA) applications? (Choose three.)

A. Postfix
B. Procmail
C. Sendmail
D. Exim
E. SMTPd

Correct Answer: ACD
Section: Essential System Services
Explanation

Explanation/Reference:

QUESTION 41
Which of the following is observed and corrected by a NTP client?

A. The skew in time between the system clock and the hardware clock.
B. The skew in time between the system clock and the reference clock.
C. Changes in the time zone of the current computer's location.
D. Adjustments needed to support Daylight Saving Time.

Correct Answer: B
Section: Essential System Services
Explanation

Explanation/Reference:

QUESTION 42
Which of the following is a legacy program provided by CUPS for sending files to the printer queues on the command line?

A. lpd
B. lpp
C. lpq
D. lpr

Correct Answer: D
Section: Essential System Services
Explanation

Explanation/Reference:

QUESTION 43
What is true about the `ntpdate` command?

A. It is the primary management command for the NTP time server.
B. It updates the local system's date (i.e. day, month and year) but not the time (i.e. hours, minutes, seconds).
C. It queries one or more NTP time servers and adjusts the system time accordingly.
D. It sends the local system time to one or many remote NTP time servers for redistribution.
E. It can be used by any user to set the user clock independently of the system clock.

Correct Answer: C
Section: Essential System Services
Explanation

Explanation/Reference:

QUESTION 44
Which of the following commands is used to rotate, compress, and mail system logs?

A. `rotatelog`
B. `striplog`
C. `syslogd --rotate`
D. `logrotate`
E. `logger`

Correct Answer: D
Section: Essential System Services
Explanation

Explanation/Reference:

QUESTION 45
What is the purpose of the `nsswitch.conf` file?

A. It is used to configure where the C library looks for system information such as host names and user passwords.
B. It is used to configure network protocol port numbers such as for HTTP or SMTP.
C. It is used to configure LDAP authentication services for the local system.
D. It is used to configure which network services will be turned on during the next system boot.

Correct Answer: A
Section: Networking Fundamentals
Explanation

Explanation/Reference:

QUESTION 46
Which of the following details is NOT provided in any output from the netstat utility?

A. broadcast services

B. interface statistics

C. masquerading connections

D. network connections

E. routing tables

Correct Answer: A
Section: Networking Fundamentals
Explanation

Explanation/Reference:

QUESTION 47
Which of the following commands can be used to display the local routing table? (Choose two.)

A. ifconfig

B. dig

C. netstat

D. route

E. trackroute

Correct Answer: CD
Section: Networking Fundamentals
Explanation

Explanation/Reference:

QUESTION 48
Which of the following is true about IPv6?

A. With IPv6, the TCP port numbers of most services have changed.

B. IPv6 no longer supports broadcast addresses.

C. IPv4 addresses can be used without any change with IPv6.

D. IPv6 no longer supports multicast addresses.

E. For IPv6, UDP and TCP have been replaced by the Rapid Transmission Protocol RTP.

Correct Answer: B
Section: Networking Fundamentals
Explanation

Explanation/Reference:

QUESTION 49
What is true regarding a default route?

A. The default route is always used first. When the default route is not available more specific routes are tried.
B. When a default route is set, all other routes are disabled until the default route is deleted.
C. The default route is only used if there is not a more specific route to a destination host or network.
D. Without a default route, no network communication even in directly attached networks is possible.

Correct Answer: C
Section: Networking Fundamentals
Explanation

Explanation/Reference:

QUESTION 50
Which of the following lines are valid in the file `/etc/hosts`? (Choose two.)

A. `2001:db8::15              www.example.com  www`
B. `www.example.com              www        203.0.13.15`
C. `203.0.113.15             www.example.com  www`
D. `www.example.com,www          203.0.13.15,2001:db8::15`
E. `2003.0.113.15,2001:db8::15  www.example.com   www`

Correct Answer: AC
Section: Networking Fundamentals
Explanation

Explanation/Reference:

QUESTION 51
Which of the following may occur as a consequence of using the command `ifconfig`? (Choose three.)

A. New name servers may be added to the resolver configuration.

B. Network interfaces may become active or inactive.

C. The routing table may change.

D. IP addresses may change.

E. The system's host name may change.

Correct Answer: BCD
Section: Networking Fundamentals
Explanation

Explanation/Reference:

QUESTION 52
What is true regarding TCP port 23?

A. Port 23 is the well known port for the telnet service which is a plain text protocol that should no longer be used.

B. Port 23 is the well known port for the SSH service which provides secure logins.

C. Port 23 is the well known port for the rlogin service which is SSL secured by default.

D. Port 23 is the well known port for the system login services which are encrypted when the user runs the starttls command in his login shell.

Correct Answer: A
Section: Networking Fundamentals
Explanation

Explanation/Reference:

QUESTION 53
Which of the following statements is valid in the file `/etc/nsswitch.conf`?

A. multi on

B. 192.168.168.4 dns-server

C. hosts: files dns

D. include /etc/nsswitch.d/

Correct Answer: C
Section: Networking Fundamentals

Explanation

Explanation/Reference:

QUESTION 54
Which of the following IPv4 networks are reserved by IANA for private address assignment and private routing? (Choose three.)

A. 127.0.0.0/8
B. 10.0.0.0/8
C. 169.255.0.0/16
D. 172.16.0.0/12
E. 192.168.0.0/16

Correct Answer: BDE
Section: Networking Fundamentals
Explanation

Explanation/Reference:

QUESTION 55
Which of the following tools used for DNS debugging, reports not only the response from the name server but also details about the query?

A. dnsq
B. dig
C. hostname
D. dnslookup
E. zoneinfo

Correct Answer: B
Section: Networking Fundamentals
Explanation

Explanation/Reference:

QUESTION 56
Which of the following programs can be used to determine the routing path to a given destination?

A. dig
B. netstat
C. ping
D. route
E. traceroute

Correct Answer: E
Section: Networking Fundamentals
Explanation

Explanation/Reference:

QUESTION 57
Given the following routing table:

```
Kernel IP routing table
Destination      Gateway         Genmask         Flags Metric Ref    Use Iface
0.0.0.0          192.168.178.1   0.0.0.0         UG    0      0        0 wlan0
192.168.1.0      0.0.0.0         255.255.255.0   U     0      0        0 eth0
192.168.2.0      192.168.1.1     255.255.255.0   U     0      0        0 eth0
192.168.178.0    0.0.0.0         255.255.255.0   U     9      0        0 wlan0
```

How would an outgoing packet to the destination 192.168.2.150 be handled?

A. It would be passed to the default router 192.168.178.1 on wlan0.
B. It would be directly transmitted on the device eth0.
C. It would be passed to the default router 255.255.255.0 on eth0.
D. It would be directly transmitted on the device wlan0.
E. It would be passed to the router 192.168.1.1 on eth0.

Correct Answer: E
Section: Networking Fundamentals
Explanation

Explanation/Reference:

QUESTION 58
Which of the following is a valid IPv6 address?

A. 2001:db8:3241::1

B. 2001::db8:4581::1

C. 2001:db8:0g41::1

D. 2001%db8%9990%%1

E. 2001.db8.819f..1

Correct Answer: A
Section: Networking Fundamentals
Explanation

Explanation/Reference:

QUESTION 59
Which of the following keywords can be used in the file `/etc/resolv.conf`? (Choose two.)

A. `substitute`

B. `nameserver`

C. `search`

D. `lookup`

E. `method`

Correct Answer: BC
Section: Networking Fundamentals
Explanation

Explanation/Reference:

QUESTION 60
On a regular users workstation the route command takes a long time before printing out the routing table. Which of the following errors does that indicate?

A. The local routing information may be corrupted and must be re-validated using a routing protocol.

B. One of the routers in the routing table is not available which causes the automatic router failure detection mechanism (ARF-D) to wait for a timeout.

C. There may accidentally be more than one default router in which case a default router election has to be done on the network in order to choose one router as the default.

D. DNS resolution may not be working as route by default tries to resolve names of routers and destinations and may run into a timeout.

Correct Answer: D

QUESTION 61
Which configuration file would be edited to change the default options for outbound SSH sessions?

A. `/etc/ssh/sshd_config`
B. `/etc/ssh/ssh`
C. `/etc/ssh/client`
D. `/etc/ssh/ssh_config`
E. `/etc/ssh/ssh_client`

Correct Answer: D
Section: Security
Explanation

Explanation/Reference:

QUESTION 62
Which command is used to set restrictions on the size of a core file that is created for a user when a program crashes?

A. core
B. edquota
C. ulimit
D. quota

Correct Answer: C
Section: Security
Explanation

Explanation/Reference:

QUESTION 63
When trying to unmount a device it is reported as being busy. Which of the following commands could be used to determine which process is causing this?

A. debug

B. lsof

C. nessus

D. strace

E. traceroute

Correct Answer: B
Section: Security
Explanation

Explanation/Reference:

QUESTION 64
Which configuration file would be edited to change default options for the OpenSSH server?

A. `/etc/ssh/sshd_config`

B. `/etc/ssh/ssh`

C. `/etc/ssh/server`

D. `/etc/ssh/ssh_config`

E. `/etc/ssh/ssh_server`

Correct Answer: A
Section: Security
Explanation

Explanation/Reference:

QUESTION 65
What is a purpose of an SSH host key?

A. It must be sent by any SSH client in addition to a user key in order to identify the client's host.

B. It provides the server's identity information to connecting SSH clients.

C. It is the root key by which all user SSH keys must be signed.

D. It authenticates any user that logs into a remote machine from the key's host.

E. It is used by system services like cron, syslog or a backup job to automatically connect to remote hosts.

Correct Answer: B

QUESTION 66
Which of the following commands can be used to limit the amount of memory a user may use?

A. umask
B. usermod
C. ulimit
D. passwd
E. chage

Correct Answer: C
Section: Security
Explanation

Explanation/Reference: