

**102-500.57q**

Number: 102-500  
Passing Score: 800  
Time Limit: 120 min

**102-500**



**LPI Level 1**

## Exam A

### QUESTION 1

How many IP addresses can be used for unique hosts inside the IPv4 subnet 192.168.2.128/26?

- A. 6
- B. 14
- C. 30
- D. 62



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- E. 126

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### QUESTION 2

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

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

**Correct Answer:** ADE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

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**QUESTION 3**

Which of the following commands configure network interfaces based on the system's existing distribution-specific configuration files? (Choose two.)

- A. ifconf
- B. ifdown
- C. ifpause
- D. ifstart
- E. ifup

**Correct Answer:** BE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 4**

Which of the following statements is true if the UID of a regular user is identical to the GID of a group?

- A. UID have precedence over GIDs, therefore the user is available while the group doesn't.
- B. The user as well as the group are not available to avoid ambiguity due to the ID conflict.
- C. UIDs and GIDs are independent of each other, therefore the user as well as the group are still available.
- D. The user is the only member of the group, even if the group configuration contains other members.
- E. GIDs have precedence over UIDs, therefore the group is available while the user isn't.

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 5**

Which of the following information is stored in `/etc/shadow` for each user?

- A. The timestamp of the user's last login

- B. The user's private SSH keys
- C. The hashed password of the user
- D. The numerical user ID (UID)
- E. The path to the user's home directory

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 6**

Which of the following commands shows all active systemd timers?

- A. `systemctl-timer show`
- B. `timectl list`
- C. `systemctl -t`
- D. `systemctl list-timers`
- E. `timeq`

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 7**

Which of the following tasks can the `date` command accomplish? (Choose two.)

- A. Set the system's date and time.
- B. Set the system's date but not the time.
- C. Calculate the time span between two dates.
- D. Print a calendar for a month or a year.
- E. Display time in a specific format.

**Correct Answer:** AE

**Section: (none)**

**Explanation**

**Explanation/Reference:**

### **QUESTION 8**

FILL BLANK

Which file, if present, must contain all users that are allowed to use the cron scheduling system? (Specify the full name of the file, including path.)

**Correct Answer:** crontab

**Section: (none)**

**Explanation**

**Explanation/Reference:**

### **QUESTION 9**

What can be specified with `useradd`? (Choose two.)

- A. Commands the user can run using `sudo`.
- B. The absolute path to the user's home directory.
- C. Which printers are available for the new user.
- D. The SSH keys used to login to the new account.
- E. The numeric user ID (UID) of the user.

**Correct Answer:** BE

**Section: (none)**

**Explanation**

**Explanation/Reference:**

### **QUESTION 10**

What is true about the file `/etc/localtime`?

- A. It is a plain text file containing a string such as `Europe/Berlin`
- B. It is created and maintained by the NTP service based on the location of the system's IP address.

- C. It is a symlink to `/sys/device/clock/ltime` and always contains the current local time.
- D. After changing this file, `newtzconfig` has to be run to make the changes effective.
- E. It is either a symlink to or a copy of a timezone information file such as `/usr/share/zoneinfo/Europe/Berlin`.

**Correct Answer:** E

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### QUESTION 11

Which of the following statements is true regarding systemd timer units?

- A. Timer units can only be defined within a service unit's file.
- B. The command executed by the timer is specified in the timer unit's `[Cmd]` section.
- C. A dedicated system service, `systemd-cron`, handles the execution of timer units.
- D. Timer units only exist in the system scope and are not available for users.
- E. Each systemd timer unit controls a specific systemd service unit.

**Correct Answer:** E

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### QUESTION 12

Which of the following fields are available in the standard format of both the global `/etc/crontab` file as well as in user-specific `crontab` files? (Choose two.)

- A. Year
- B. Minute
- C. Username
- D. Effective group ID
- E. Command

**Correct Answer:** BD

**Section:** (none)

### Explanation

### Explanation/Reference:

#### QUESTION 13

Which of the following commands should be executed when starting a login shell in order to change the language of messages for an internationalized program to Portuguese (pt)?

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

**Correct Answer: B**

**Section: (none)**

### Explanation

### Explanation/Reference:

#### QUESTION 14

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

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

**Correct Answer: C**

**Section: (none)**

### Explanation

### Explanation/Reference:

#### QUESTION 15

Which of the following entries in `/etc/syslog.conf` writes all mail related events to the file `/var/log/maillog` and sends all critical events to the remote server `logger.example.com`?

- A. `mail.*`                `/var/log/maillog`  
   `mail,crit`        `@logger.example.org`
- B. `mail.*`                `/var/log/maillog`  
   `mail.crit`        `syslog://logger.example.org`
- C. `mail`                 `/var/log/maillog`  
   `mail.crit`        `@logger.example.org`
- D. `mail.*`                `/var/log/maillog`  
   `mail.crit`        `@logger.example.org`
- E. `mail *`                `/var/log/maillog`  
   `mail crit`        `@logger.example.org`

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 16

Which of the following protocols is related to the term open relay?

- A. SMTP
- B. POP3
- C. NTP
- D. IMAP
- E. LDAP

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 17

Which of the following commands displays all environment and shell variables?



- A. `getargs`
- B. `lsenv`
- C. `ls`
- D. `env`
- E. `lsshell`

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 18

Which of the following comparison operators for `test` work on elements in the file system? (Choose two.)

- A. `-z`
- B. `-eq`
- C. `-d`
- D. `-f`
- E. `-lt`

**Correct Answer:** CD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 19

What information is provided by the `echo $$` command?

- A. The process ID of the current shell.



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- B. The process ID for the following command.
- C. The process ID of the last command executed.
- D. The process ID of the last command which has been placed in the background.
- E. The process ID of the `echo` command.

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 20

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

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

**Correct Answer:** E

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 21

What output is produced by the following command sequence?

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

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done

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

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 22**

Which of the following configuration files should be modified to globally set shell variables for all users?

- A. /etc/profile
- B. /etc/bashrc
- C. ~/.bash\_profile
- D. /etc/.bashrc
- E. /etc/shellenv

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 23**

What output does the command `seq 10` produce?

- A. A continuous stream of numbers increasing in increments of 10 until the command is stopped.
- B. It creates no output because a second parameter is missing.
- C. The number 0 through 9 with one number per line.
- D. The number 10 to standard output.

E. The numbers 1 through 10 with one number per line.

**Correct Answer:** E

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 24**

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

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

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 25**

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 is root key by which all user SSH keys must be signed.
- C. It provides the server's identity information to connecting SSH clients.
- 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:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 26**

What is the purpose of TCP wrapper?

- A. Manage and adjust bandwidth used by TCP services.
- B. Bind a network service to a TCP port.
- C. Encapsulate TCP messages in IP packets.
- D. Add SSL support to plain text TCP services.
- E. Limit access to a network service.

**Correct Answer:** E

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 27**

Given the following excerpt of the `sudo` configuration:

```
jane ANY=NOPASSWD: /bin/kill, /bin/id, PASSWD: /sbin/fdisk
```

Which of the following statements are true? (Choose three.)

- A. Jane can run `/bin/id` only after specifying her password.
- B. Jane can run `/sbin/fdisk` after specifying `root`'s password.
- C. Jane can run `/sbin/fdisk` after specifying her password.
- D. Jane can run `/bin/kill` without specifying a password.
- E. Jane can run `/bin/id` without specifying her password.

**Correct Answer:** CDE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 28**

Which configuration file contains the default options for SSH clients?

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

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 29**

Depending on a system's configuration, which of the following files can be used to enable and disable network services running on this host?

- A. `/etc/profile`
- B. `/etc/xinetd.conf`
- C. `/etc/ports`
- D. `/etc/services`
- E. `/etc/host.conf`

**Correct Answer: D**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 30**

Which of the following commands can identify the PID of a process which opened a TCP port?

- A. `ptrace`
- B. `strace`
- C. `debug`
- D. `lsof`
- E. `nessus`

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### QUESTION 31

FILL BLANK

When using X11 forwarding in SSH, what environment variable is automatically set in the remote shell in order to help applications to connect to the correct X11 server? (Specify only the environment variable without any additional commands or values.)

**Correct Answer:** DISPLAY

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### QUESTION 32

The X11 configuration file `xorg.conf` is grouped into section. How is the content of the section `SectionName` represented?

- A. It is placed in curly brackets as in `Section SectionName {...}`.
- B. It is placed between the tags `<Section name="SectionName">` and `</Section>`.
- C. It is placed between a line containing `Section "SectionName"` and a line containing `EndSection`.
- 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:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### QUESTION 33

Which of the following features are provided by SPICE? (Choose two.)

- A. Connecting local USB devices to remote applications.
- B. Accessing graphical applications on a remote host.
- C. Replacing Xorg as local X11 server.
- D. Downloading and locally installing applications from a remote machine.
- E. Uploading and running a binary program on a remote machine.

**Correct Answer:** AD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 34

What is the systemd journal stored?

- A. `/var/jlog/` and `/var/jlogd/`
- B. `/proc/log/` and `/proc/klog/`
- C. `/run/log/journal/` or `/var/log/journal/`
- D. `/var/log/syslog.bin` or `/var/log/syslog.jrn`
- E. `/etc/systemd/journal/` or `/usr/lib/systemd/journal/`

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 35

Which of the following is true regarding the command `sendmail`?

- A. With any MTA, the `sendmail` command must be run periodically by the cron daemon.
- B. When using systemd, `sendmail` is an alias to `relayctl`.
- C. The `sendmail` command prints the MTA's queue history of which mails have been sent successfully.
- D. It is only available when the sendmail MTA is installed.
- E. All common MTAs, including Postfix and Exim, provide a `sendmail` command.



**Correct Answer:** E

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 36**

Which file inside the CUPS configuration directory contains the settings of the printers?

- A. cups-devices.conf
- B. snmp.conf
- C. printers.conf
- D. printcap.conf
- E. cupsd.conf

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 37**

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

- A. `--since=`
- B. `--from=`
- C. `--until=`
- D. `--upto=`
- E. `--date=`

**Correct Answer:** AC

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 38**

What is true regarding the file `~/.forward`?

- A. When configured correctly `~/.forward` can be used to forward each incoming mail to one or more other recipients.
- B. After editing `~/.forward` the user must run `newaliases` to make the mail server aware of the changes.
- C. Using `~/.forward`, root may configure any email address whereas all other users may configure only their own addresses.
- D. As `~/.forward` is owned by the MTA and not writable by the user, it must be edited using the `editaliases` command.
- E. By default, only `~/.forward` files of users in the group `mailq` are processed while all other user's `~/.forward` files are ignored.

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 39**

Which of the following commands display a list of jobs in the print queue? (Choose two.)

- A. `cups --list`
- B. `lprm -l`
- C. `lpstat`
- D. `lpr -q`
- E. `lpq`

**Correct Answer:** CE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 40**

On a system using `systemd-journald`, which of the following commands add the message `Howdy` to the system log? (Choose two.)

- A. `append Howdy`
- B. `logger Howdy`

- C. `systemd-cat echo Howdy`
- D. `echo Howdy > /dev/journal`
- E. `journalctl add Howdy`

**Correct Answer:** E

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 41

Which of the following options in the chrony configuration file define remote time sources? (Choose two.)

- A. `source`
- B. `clock`
- C. `remote`
- D. `pool`
- E. `server`

**Correct Answer:** DE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 42

FILL BLANK

Which command is used to sync the hardware clock to the system clock? (Specify **only** the command without any path or parameters.)

**Correct Answer:** `hwclock`

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 43**

Which of the following situations is observed and corrected by an NTP client?

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

**Correct Answer:** E

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 44**

If an alias `ls` exists, which of the following commands updates the alias to point to the command `ls -l` instead of the alias's current target?

- A. `set ls='ls -l'`
- B. `alias ls='ls -l'`
- C. `alias --force ls='ls -l'`
- D. `alias --update ls ls='ls -l'`
- E. `realias ls='ls -l'`

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 45**

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:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 46**

Which of the following files is not read directly by a Bash login shell?

- A. `~/.bashrc`
- B. `~/.bash_profile`
- C. `~/.bash_login`
- D. `~/.profile`
- E. `/etc/profile`

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 47**

What is true about the file `.profile` in a user's home directory?

- A. It must be executable.
- B. It must call the binary of the login shell.
- C. It must use a valid shell script syntax.
- D. It must start with a shebang.
- E. It must be readable for its owner only.

**Correct Answer:** E

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 48**

How does the `ping` command work by default?

- A. It sends an ICMP Echo Request to a remote host and waits to receive an ICMP Echo Response in return.
- B. It sends an ARP request to a remote host and waits to receive an ARP response in return.
- C. It sends a TCP SYN packet to a remote host and waits to receive a TCP ACK response in return.
- D. It sends a broadcast packet to all hosts on the net and waits to receive, among others, a response from the target system.
- E. It sends a UDP packet to port 0 of the remote host and waits to receive a UDP error response in return.

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 49**

Which of the following commands display the number of bytes transmitted and received via the `eth0` network interface? (Choose two.)

- A. `route -v via eth0`
- B. `ip stats show dev eth0`
- C. `netstat -s -i eth0`
- D. `ifconfig eth0`
- E. `ip -s link show eth0`

**Correct Answer:** CD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 50**

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 passed to the router 192.168.1.1 on eth0.
- E. It would be directly transmitted on the device wlan0.

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 51

Which of the following commands will delete the default gateway from the system's IP routing table? (Choose two.)

- A. `ifconfig unset default`
- B. `route del default`
- C. `ip route del default`
- D. `netstat -r default`
- E. `sysctl ipv4.default_gw=0`

**Correct Answer:** BC

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 52**

Which standardized TCP port is used by HTTPS services?

- A. 25
- B. 80
- C. 8080
- D. 443
- E. 636

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 53**

Which of the following environment variables can be defined in `locale.conf`? (Choose two.)

- A. `LC_ALL`
- B. `LC_USERNAME`
- C. `LC_UTF8`
- D. `LC_GEOGRAPHY`
- E. `LC_TIME`

**Correct Answer:** AE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 54**

Which of the following commands sets the system's time zone to the Canadian Eastern Time?

- A. `localegen -t -f /usr/share/zoneinfo/Canada/Eastern > /etc/locate.tz`



- B. `tzconf /etc/localtime`
- C. `sysctl -w clock.tz='Canada/Eastern'`
- D. `modprobe tz_ca_est`
- E. `ln -sf /usr/share/zoneinfo/Canada/Eastern /etc/localtime`

**Correct Answer:** E

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 55**

Which file contains the data of the last change of a user's password?

- A. `/etc/gshadow`
- B. `/etc/passwd`
- C. `/etc/pwdlog`
- D. `/var/log/shadow`
- E. `/etc/shadow`

**Correct Answer:** E

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 56**

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

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

**Correct Answer:** BC

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 57**

Which of the following sections exists in a systemd timer unit?

- A. [Events]
- B. [Timer]
- C. [cron]
- D. [Schedule]
- E. [Trigger]

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**



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