

1. Which partitioning tool is specifically designed to edit GUID Partition Table (GPT) disks?
 - A. fdisk
 - B. cfdisk
 - C. gdisk
 - D. sfdisk
2. What command shows physical volumes known to LVM?
 - A. vgdisplay
 - B. pvs
 - C. lvdisplay
 - D. pvcreate
3. Which file maps hostnames to IP addresses on a Linux system before DNS is consulted?
 - A. /etc/resolv.conf
 - B. /etc/nsswitch.conf
 - C. /etc/hosts
 - D. /etc/networks
4. What systemd command starts a service immediately (but does not enable it at boot)?
 - A. systemctl enable <service>
 - B. systemctl start <service>
 - C. systemctl enable --now <service>
 - D. systemctl mask <service>
5. Which of the following is the default printing protocol used by CUPS?
 - A. LPR/LPD
 - B. IPP (Internet Printing Protocol)
 - C. SMB
 - D. SNMP
6. Which /etc file lists filesystems to be mounted automatically at boot?
 - A. /etc/fstab
 - B. /etc/mtab
 - C. /etc/auto.master
 - D. /etc/exports
7. The fdisk utility is most appropriate for disks using which partition table type?
 - A. GPT
 - B. MBR (DOS)
 - C. ZFS partition table
 - D. LVM metadata
8. Which LVM command creates a new logical volume?
 - A. lvcreate
 - B. vgcreate
 - C. pvcreate
 - D. lvremove
9. Which option in /etc/fstab prevents execution of binaries on the mounted filesystem?
 - A. ro
 - B. noexec
 - C. nodiratime
 - D. nosuid

10. On an NIS client, which daemon binds the client to an NIS server/domain?
- A. ypserv
 - B. named
 - C. ypbind
 - D. nisclientd
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MEDIUM (15)

11. You need to expand an existing logical volume `/dev/vgdata/lvhome` online and grow the filesystem `ext4`. Which sequence is correct?
- A. `lvextend -L +5G /dev/vgdata/lvhome ; resize2fs /dev/vgdata/lvhome`
 - B. `lvresize /dev/vgdata/lvhome 5G ; mkfs.ext4 /dev/vgdata/lvhome`
 - C. `lvremove /dev/vgdata/lvhome ; lvcreate -L +5G /dev/vgdata/lvhome`
 - D. `pvresize /dev/vgdata/lvhome ; fsck -f /dev/vgdata/lvhome`
12. Which `/etc` file defines the order of database lookups (files, LDAP, NIS, DNS) for user and host resolution?
- A. `/etc/services`
 - B. `/etc/nsswitch.conf`
 - C. `/etc/pam.d/common-auth`
 - D. `/etc/hosts.allow`
13. What is the purpose of a "protective MBR" on a GPT disk?
- A. Prevents accidental writes to GPT by legacy MBR-only tools.
 - B. Stores LVM metadata for GPT partitions.
 - C. Holds the bootloader for UEFI.
 - D. It is an alternative to a secondary GPT header.
14. Which CUPS configuration file specifies available printers and their device URIs?
- A. `/etc/cups/printers.conf`
 - B. `/etc/printcap`
 - C. `/etc/cups/ppd.conf`
 - D. `/etc/cups/devices`
15. You want to make an LVM snapshot of `/dev/vgdata/lvdb` sized 1G named `dbsnap`. Which command is appropriate?
- A. `lvcreate -L1G -s -n dbsnap /dev/vgdata/lvdb`
 - B. `lvcreate -n dbsnap -L1G /dev/vgdata/lvdb`
 - C. `lvcreate --snapshot dbsnap /dev/vgdata/lvdb 1G`
 - D. `lvcreate -s dbsnap /dev/vgdata/lvdb --size 1G`
16. Which `systemctl` target is the `systemd` equivalent of the classic runlevel 3 (multi-user, non-graphical)?
- A. `graphical.target`
 - B. `multi-user.target`
 - C. `runlevel3.target`
 - D. `default.target`
17. Which command will convert an MBR partition table to GPT without destroying partitions using `gdisk`?
- A. `gdisk -c /dev/sdX`

- B. `gdisk /dev/sdX` then use the 'r' (recovery and transformation) menu and write
 - C. `gdisk --convert /dev/sdX`
 - D. `gdisk` cannot convert MBR to GPT
18. For NIS, which command initializes an NIS master server with local maps?
- A. `ypinit -m`
 - B. `ypmake -M`
 - C. `ypserv -i`
 - D. `ypinit -s`
19. Which of the following `/etc/fstab` options is recommended for network filesystems to prevent blocking on mount if the network is unavailable?
- A. `bg` (background) or `_netdev` with `noauto`
 - B. `nouser`
 - C. `defaults`
 - D. `user`
20. What does the `pvresize` command do in LVM?
- A. Create a new physical volume.
 - B. Remove unused PVs from a VG.
 - C. Adjust a PV to use a resized underlying block device (e.g., after enlarging a partition).
 - D. Shrink logical volumes to fit the PV.
21. Which Samba/Windows printing protocol allows clients to discover and print to CUPS printers over SMB?
- A. IPP
 - B. LPR
 - C. SMB/CIFS with `print$` share and RPC over SMB
 - D. SNMP
22. When troubleshooting a `systemd` unit that fails to start, which command shows its most recent log lines from the journal?
- A. `journalctl -u <unit> -n 50 --no-pager`
 - B. `tail /var/log/messages -u <unit>`
 - C. `systemctl logs <unit>`
 - D. `dmesg | grep <unit>`
23. Which LVM command displays the sizes and free PE (physical extents) in a volume group?
- A. `vgdisplay`
 - B. `lvdisplay`
 - C. `pvdisplay`
 - D. `pvs`
24. If `/etc/resolv.conf` has `nameserver 8.8.8.8` and `search example.com`, what is the resolver behavior when you `ping host`?
- A. It will append `example.com` and try `host.example.com` first, then try `host`.
 - B. It will only resolve `host` via DNS without appending search.
 - C. It will first query the hosts file then DNS.
 - D. It will always use reverse DNS.
25. Which LVM feature provides on-demand (thin) provisioning of logical volumes?
- A. LV snapshots
 - B. Thin pools / thin LVs

- C. Striped LVs
 - D. PV caching
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HARD (15)

26. You have a disk `/dev/sdb` partitioned with MBR; you need a GPT disk to support >2TB and many partitions but want to preserve existing partition data. Which is the safest approach?
- A. Use `gdisk recovery & transform` to convert MBR to GPT, verify partition start/end offsets, then write.
 - B. Run `fdisk` and create new GPT partitions directly; `fdisk` will keep data.
 - C. Zero the disk and recreate partitions with `parted mklabel gpt`.
 - D. Use `pvcreate` to convert to LVM PV and ignore partition table type.
27. In LVM, you need to mirror an existing logical volume across two PVs within the same VG to protect against single-disk failure. Which command pattern will create a mirrored LV named `mylv` of size 50G in VG `data_vg`?
- A. `lvcreate -L50G -m1 -n mylv data_vg`
 - B. `lvcreate -L50G --mirror 2 -n mylv data_vg`
 - C. `lvconvert --mirror 2 data_vg/mylv`
 - D. `vgcreate -m1 -n mylv data_vg`
28. A server uses NIS for passwd maps. A user changes their password on the client with `passwd`. After change, other NIS clients still see the old password. What is the likely missing or incorrect step?
- A. The passwd map on the NIS master was not rebuilt/updated (e.g., `make -C /var/yp` or `ypinit` step missing).
 - B. The client did not restart `ypbind`.
 - C. `nscd` cache must be cleared on the master.
 - D. The `passwd` command does not update NIS maps by design.
29. You are configuring CUPS to allow only authenticated users to print, using PAM-based authentication. Which file and directive would you most likely edit to control authentication and authorization?
- A. `/etc/cups/printers.conf` — Set `AuthType` there.
 - B. `/etc/cups/cupsd.conf` — Configure `<Location />` sections with `AuthType` and `Require` directives.
 - C. `/etc/pam.d/cups` — It is not used by CUPS.
 - D. `/etc/cups/ppd` — add `auth` lines per printer.
30. Which sequence correctly repairs an LVM VG after physically replacing a failed PV with a new, larger disk (assume data was mirrored or PV fully moved)?
- A. `pvcreate` on new disk; `vgextend`; `pvmove` (if needed); `vgreduce` to remove old missing PV.
 - B. `pvremove` old PV; `pvcreate` new PV; `vgchange --repair`; `lvextend`.
 - C. `vgremove`; `vgcreate`; `lvcreate` to recreate LVs.
 - D. You cannot repair — data lost.

31. An `/etc/fstab` entry for an NFS mount uses the option `soft`. What is the practical effect of `soft` on NFS mounts?
- A. NFS will retry forever until server responds.
 - B. NFS client returns an error to the calling process after retries; may cause data corruption for some writes.
 - C. It enforces read-only access to the NFS share.
 - D. It forces mount to occur in the background.
32. On a multi-homed host you must ensure name resolution prioritizes a local `/etc/hosts` entry, then NIS, then DNS. Which `/etc/nsswitch.conf` hosts line achieves this?
- A. `hosts: files nis dns`
 - B. `hosts: dns files nis`
 - C. `hosts: nis dns files`
 - D. `hosts: files dns nis`
33. You plan to move an existing LVM logical volume `vgdata/lvlogs` to a different physical disk while the filesystem is mounted and heavily used. Which approach minimizes downtime and risk?
- A. Use `pvmove` to migrate the logical extent data from old PV to new PV while mounted; then `pvremove` old PV.
 - B. Unmount the filesystem, dd the block device to the new disk, adjust `fstab`.
 - C. Use `dd` while mounted and running workloads.
 - D. Create a new LV on the new disk and copy files with `cp -a` while mounted, then rename volumes.
34. An Open-mode NIS client repeatedly reports `No such domain` when starting `ypbind`. Which of the following is NOT a likely cause?
- A. The client's NIS domainname is not set (`domainname` returns empty).
 - B. Network connectivity issues to the NIS server.
 - C. The `/etc/hosts` file contains an entry mapping 127.0.0.1 to the NIS server hostname.
 - D. The NIS server's firewall is blocking RPC/YP ports.
35. You must create a secure print environment. Which of the following measures is LEAST effective at improving print privacy/security?
- A. Use IPP over TLS (HTTPS) for CUPS access and encrypted print job submission.
 - B. Implement per-user access controls and authentication to printer queues.
 - C. Disable logging entirely on the print server to prevent job metadata storage.
 - D. Configure print job retention and automatic purge after a set time.
36. Your system's root filesystem is managed by LVM and is running out of space. You have additional space on an unused PV in the VG. Which is the safest way to increase the root LV and filesystem online on modern distributions using `ext4`?
- A. `lvextend -L +10G /dev/mapper/vg_root ; resize2fs /dev/mapper/vg_root`
 - B. `lvextend --resizefs -L +10G /dev/mapper/vg_root`
 - C. `lvcreate -L 10G -n root vg_root`
 - D. `lvresize --size +10G ; reboot required`
37. Which kernel-level mechanism ensures that a filesystem mounted with the `nosuid` option will ignore `set-UID` and `set-GID` bits?
- A. VFS layer honors mount flags `MS_NOSUID` which causes the kernel to ignore SUID/SGID bits.
 - B. PAM enforces `nosuid` at login time.

- C. The init system strips SUID bits on mount.
 - D. `nsswitch.conf` disables SUID resolution.
38. You need the NIS `passwd` map to include shadow (hashed) passwords for secure authentication. Which approach is recommended?
- A. Use shadow maps via NIS by running `make in /var/yp` to generate `shadow.byname` from `/etc/shadow` and secure access to NIS.
 - B. NIS cannot carry shadow entries; use NIS+ instead.
 - C. Put `/etc/shadow` on an NFS share and let clients read it.
 - D. NIS always transmits plaintext passwords — impossible to secure.
39. A physical host uses both GPT and a UEFI firmware. Which partition type is required to store the UEFI bootloader (on Linux systems)?
- A. A BIOS boot partition (type ef02)
 - B. An EFI System Partition (type ef00) formatted FAT32
 - C. A Linux swap partition (type 8200)
 - D. A Linux LVM partition (type 8e00)
40. You find a systemd unit file that has `Type=forking` and the service fails to reach "active" state. Which troubleshooting step is most appropriate?
- A. Change `Type` to `simple` without any other checks.
 - B. Inspect the service's PID file path (if used) and the unit's `PIDFile=` setting and check logs (`journalctl -u`).
 - C. Mask the unit to stop it from starting.
 - D. Remove `ExecStart=` and re-add it.