**1- List three modes of the vim editor**

*Insert mode*

*Command Mode*

*Execute Mode*

*Visual Mode (Shift+V)*

2- What command is used to change the owner, the group, or both for a file or directory?

#chown cadmin testile

#chown cadmin:sales testfile

#chown :mktg testfile

#chown -R cadmin:mktg testdir

3- List the 5 stages of process status

-Interruptable Sleep

-Uninterruptable Sleep

- Running

-Zombie

**4- Give a brief description of what positional parameters are:**

A positional Parameter is an argument specified on the command line

#./myscript.sh **file1** **file2** (myscript.sh would be $0 file1 would be $1 and file2 would $2)

**5- What command will list all your environment variables**

#env

#export x (the **export** command will change a variable from a SHELL variable to an environment variable

**6- Which command will let you see the most recent entries of the /var/log/secure file**

*#tail /var/log/secure*

**7- Which of the following is a technique of controlling what a process (such as a user) can access on a file system by changing the root directory of that process's environment?**

*chroot jail (The technique is called chroot jail and the directory is called jail)*

**8- From the following, what is the purpose of the export command?**

*To convert a local shell variable into a global environment variable*

**9- Which of the following is a feature of the Linux kernel that provides redundancy and improved performance for block storage devices?**

DM-Multipath

**10- Which command will generate a response request from the sending computer and should receive a reply from the destination computer?**

*#ping*

**11- Virtual machine templates can make deployments much more efficient. What template contains the necessary configuration files, packages, etc., for *virtual machines* and network devices?**

*Open Virtualization Format (OVF)*

*(*Open Virtualization Format (OVF) contains the necessary configuration files, packages, etc., for virtual machines and network devices. These files may be used in the deployment of virtual machines in a virtualized environment.)

12-**You wish to set the monetary value setting of your Linux environment to the U.S. dollar. Which environment variable can you specify, regardless of any other location parameters that are set on the system?**

*LC\_MONETARY*

(Run the command locale to see the current LC\_MONETARY setting.)

#locatectl set-locate LC\_MONETARY=en\_US.UTF-8

**13- You wish to configure SSH (secure shell) to disable root login. What is the first thing to do on the destination server?**

*Edit /etc/ssh/sshd\_config.*

**14- Which operator includes checking if operands are equal, if one operand is less than or greater than another operand, and more?**

*Comparison operators*

<https://linuxize.com/post/how-to-compare-strings-in-bash/>

**15-Which of the following is a distributed version control system primarily used by developers who are collaborating on projects?**

*Git*

**16-When creating a Bash script, which of the following lines should be added to the beginning?**

*#!/bin/bash*

**17-Which of the following commands does NOT provide software package management including application updates?**

tar

apt

dpkg

yum

**18- What enables users to choose which operating system or kernel version to boot in a multi-platform environment?**

*GNU Grand Unified Bootloader (GNU GRUB)*

**19-System logs that record a "Machine Check Exception" error message usually indicate an issue with which component?**

*Memory*

#mcelog command will write to /var/log/mcelog by default

**20-What can provide an immense amount of information about how the server boots, what services are running and how they are performing?**

*Log services*

**21-ou're editing a file in Vim and you realize that you've made several errors and decide to start over with your editing. How do you leave the file without saving any changes that you've made?**

*Press Esc to enter command mode and then enter :q!*

**22-What defines exactly what a user is allowed to do with a particular file or directory?**

*Permission attributes define exactly what a user is allowed to do with a particular file or directory.  
  
Permissions are access rights assigned to users, which enable them to access or modify certain files and directories. Permissions can be set at different levels and for different access contexts.*

**23-Which command is used to test the maximum throughput an interface will support?**

iperf

*it must be installed on both endpoints*

**24- A user would like to be able to work remotely. Access should be configured as if the user was physically present to the network location. Which service should you configure?**

*VPN*

**25- Between the GNOME (GNU Network Object Model Environment), a type of desktop environment, and KDE (K Desktop Environment) Plasma which is the most popular and why?**

*GNOME is popular because it follows HIG. (Human Interface Guide)*

**26-What boot option is a part of the Unified Extensible Firmware Interface (UEFI) standard that enables a client to retrieve the necessary boot loader and system files from a server over the network?**

*Preboot Execution Environment (PXE)*

**27- In a Linux system processes are prioritized based on a number from -20 to 19. This number value is known as which of the below?**

*nice*

**28-You are using Git version control for a development project. You would like each version to have a comment to keep track of changes. Which of the following can you use to accomplish this?**

*git commit -m " Commit number 5"*

**29- What has the ability to inventory software, enabling administrators to easily see installed software and software version information?**

*rpm*

(rpm -qa)

***30-What can be managed though orchestration tools?***

1. Attributes
2. Build automation
3. Procedures
4. ***Inventory***

**31- Which of the following commands is an often unreliable way of querying the system for attached hardware components?**

*dmidecode*

**32-Which one of the following is NOT a default environment variable on a Linux System?**

1. *TZ*
2. HOSTNAME
3. PATH
4. SHELL

(env |gerp TZ ) produces no output

**33- What was originally a joint Rackspace and NASA (National Aeronautics and Space Administration) project, usually deployed as an IaaS (Infrastructure as a Service) solution to manage cloud resources?**

*OpenStack*

**34-Where can you look to find a listing of all the regional time zones recognized by your Linux distribution?**

*/usr/share/zoneinfo*

**35- Which context-based permissions scheme works with file system objects based on paths, rather than referencing inodes?**

*AppArmor*

*AppArmor is an alternative context-based permissions scheme and Mandatory Access Control (MAC) implementation for Linux. AppArmor is packaged with Debian-based and SUSE Linux distributions. AppArmor works with file system objects based on paths.*

**36-You are editing a file with the Vim editor. You’ve decided to quit without saving changes. Which command do you issue?**

*:q!*

**36-What is an improvement of the Grand Unified Bootloader (GRUB) 2 system compared to the GRUB system?**

*Support for custom graphical boot menus and themes.*

**37-What command will generate a response request from the sending computer and should receive a reply from the destination computer?**

1. *ping*
2. traceroute
3. netstat
4. tracepath

**38-What is a process or function that transforms plaintext input into an indecipherable fixed-length output and ensures that this process cannot be feasibly reversed?**

1. Encryption
2. Linux Unified Key Setup (LUKS)
3. Hashing
4. Chroot jail

**39-Which of the following partition types has a limitation of four primary partitions?**

*MBR*

GPT is a successor to MBR. Like MBR, it is a partition structure, but it employs a more modern design and is part of the UEFI standard. The storage space and partition number maximums are so large that they are not currently achievable.

**40-What is the act of referencing or retrieving the value of a variable called?**

*Substitution*

**41-A user is having difficulty connecting to an access point with a Linux laptop. Which command can you use to check the laptop’s wireless network adapter configuration?**

*iwconfig*

**42-Which of the following wireless connection standards is primarily used to create a local area network (LAN) for home and office computing?**

Wi-Fi

**43-Which of the following is an example of the myscript.sh arg1 arg2 arg3 command?**

1. **Positional parameters**
2. Functions
3. Globbing
4. Command substitution

**44-Which command is used to control password expiration, expiration warnings, inactive days, and other information for existing accounts?**

1. Passwd
2. usermod
3. useradd
4. ***chage***

#chage -l cadmin

#chage -M 90 cadmin

#chage -m 3 cadmin

#change -W 5 cadmin

**45-You are given a task to secure users' access to the Internet and improve the browsing experience. What type of service or server role can you set up to accomplish this task?**

1. ***Proxy***
2. Load balancing
3. Authentication
4. Clustering

A proxy service resides on a system that has a direct connection to the Internet (an untrusted connection) and an internal network connection (a trusted connection). The purpose of the proxy is to pass Internet requests between the two networks. Most Linux distributions include a proxy service called Squid.

**46-If you need to change a shell variable into an environment variable, which command would you use?**

1. env
2. set
3. **export**
4. alias

**47-You would like to archive multiple files into a single file. Which of the following would accomplish this?**

1. snapshot
2. image
3. clone
4. tar

**48-Your team has decided to use only one internal Domain Name System (DNS) server and one external. You must change the DNS server IP (Internet Protocol) addresses on every Linux server. Which file can you edit to change the IP addresses?**

**a- /etc/resolv.conf**

b- /etc/nsswitch.conf

c- /etc/sysconfig/network

d- /etc/sysconfig/network-scripts

**50-What is the permission that allows a user to have similar permissions as the owner of the file?**

1. Immutable flag
2. *SGID*
3. SUID
4. Sticky bit

**51-What is the fundamental principle of keeping organizational information accurate, free of errors, and without unauthorized modifications?**

1. Availability
2. *Integrity*
3. Confidentiality
4. Cybersecurity

**52-You are connected to a remote server using SSH (secure shell) and you need to locate a file in a large share directory using the command-line interface. You want to search all the files in a directory but only want to return files starting with 'ant.' How can you combine the two commands together?**

1. &>
2. |
3. grep
4. >>

**53-A “bare metal” hypervisor is a type 1 hypervisor. Which of the following hypervisors are NOT type 1?**

1. VMWare ESXi
2. Citrix XenServer
3. Microsoft Hyper-V
4. *Oracle VM*

**54-What is the lifecycle process of starting services, modifying their running state, and stopping them?**

1. Service
2. Unit files
3. *Service manageme*nt
4. System initialization

**55-You are traveling around the world. You get a phone call to administer a Linux server at your company's headquarters facility. You connect to the server using a remote access virtual private network (VPN). Which VPN mode would you typically be using in this situation?**

1. SSL
2. IPSec
3. Tunnel mode
4. *Transport mode*

**56-You are troubleshooting some system issues on your Red Hat Enterprise Linux (RHEL) 7 web server that is managing services on a systemd environment. As part of the troubleshooting process, you want to prevent Apache from running after the system is rebooted. You would like to keep it disabled until the system is ready. How can you accomplish this?**

1. systemctl stop httpd.service
2. chkconfig apache off
3. *systemctl disable httpd.service*
4. service httpd stop

**57-Which of the following commands is used as an interactive shell for Linux KVM virtual machines?**

1. systemctl
2. libvirt
3. *virsh*
4. virt-manager

**58-Which of the following utilities is used to report on problems detected during runtime?Which of the following utilities is used to report on problems detected during runtime?**

1. free
2. *abrt-cli*
3. mcelog
4. lshw

The Automatic Bug Reporting Tool (ABRT) is a utility that analyzes and reports on problems detected during system runtime. ABRT runs as the abrtd daemon and can be configured using the abrt-cli command.

**59-What is a very common packet sniffer and network analyzer?**

1. Throughput
2. Bandwidth
3. *Wireshark*
4. Bootstrapping

**60-You need to configure a network interface on a user’s Linux workstation. Which of the following options is NOT used with the nmcli command?**

1. con down
2. *link set eth1 up*
3. connection show
4. device status

**61-You are currently working on a development project while using Git for source control. The Git repository needs to be updated with changes. What process needs to take place?**

1. pull
2. branch
3. commit
4. merge

**62-You are tasked to setup a backup schedule for a file server which will store backups to a local storage device. A backup.sh script was created to automate the backup. This script must only run after 5 p.m. daily when users are no longer working. Given the parameters, how can you schedule this automatic backup job?**

1. at 6:00 PM
2. *A cron job*
3. \* 5 \* \* \* /schedules/backup.sh
4. 5 \* \* \* \* /schedules/backup.sh

**63-Generally speaking, where are most Linux system logs located?**

1. /etc/rsyslog.conf
2. rsyslogd
3. syslog-ng
4. /var/log

**64-What are the parameters of a /etc/sysconfig/network file?**

1. {IP address} {host name}
2. Networking

Networking\_IPv6

Hostname

Gateway

1. sched\_latency\_ns

sched\_wakeup\_granularity

sched\_tunable\_scaling

1. Retry

Select-timeout

Lease

Request

Fixed-address

Server-name

**65-You are writing a Bash script and would like to connect multiple values together for evaluation. What type of operator should you use in this script?**

1. *Logical*
2. String
3. Comparison
4. Arithmetic

**66-Several of your users want to install and use Linux at home but are confused by firewall rules and managing a firewall for themselves. What tool can you recommend to help them configure their firewalls?**

1. Firewall zones
2. Netfilter
3. IP (Internet Protocol) sets
4. *Uncomplicated Firewall* (UFW)

**67-You are working on a software development project and would like to view a list of the application's shared dependencies. With which command can this be accomplished?**

1. make
2. *ldd*
3. wget
4. tar

**68-When troubleshooting software patching and update issues, which of the following is NOT helpful?**

1. Ensure that dependencies and software versions are satisfied for the patches and updates.
2. Test patches and updates before deploying them to production systems.
3. *Verify library file versions and availability*.
4. Ensure there is network connectivity when retrieving updates.

**69-Which of the following fields is NOT found in the /proc/cpuinfo file?**

1. cache size
2. vendor\_id
3. memory
4. processor

**70-What command is used to gather information about how long it took to execute a command?**

1. env
2. alias
3. *time*
4. export

**71-What service gives you access to the storage area network (SAN) and its stored content?**

* 1. VPN service
  2. Clustering service
  3. Database services
  4. File and print services

**72-Which of the following commands would be used to set a static IP address on a network interface?**

1. set ipv4.method auto
2. *set ipv4.addresses <IP address>/<subnet mask>*
3. ip addr show
4. ip link set {interface} up

**73-AppArmor is a context-based permissions scheme. Which component of AppArmor is a profile violation both logged and prevented?**

1. Modes
2. *Policies…. ( I would have thought that should have been enforced Mode)*
3. Contexts
4. Tunables

A profile is a component of the AppArmor context-based permissions scheme. AppArmor profiles can operate in one of two different modes. In enforce mode, profile violations are both logged and prevented.

**74-There are many desktop environments available for Linux. Which desktop environment is the default desktop environment in most Linux distributions?**

1. Cinnamon
2. KDE Plasma
3. *GNOME*
4. MATE

**75-You are tasked to configure a (Redundant Array of Independent Disks) RAID 6 volume using 8 disks on your Linux file server. Which disk utility will help you properly configure the RAID?**

1. *mdadm*
2. mkfs
3. fdisk
4. parted

**76-What primarily protects SSH (secure shell) servers from brute force password cracking attacks?**

1. Intrusion prevention system (IPS)
2. Trusted ports
3. Fail2ban
4. *DenyHosts*

DenyHosts primarily protects SSH (secure shell) servers from brute force password cracking attacks. In such attacks, an attacker will repeatedly attempt to log in to the SSH server using credentials that increment each time.  
  
Fail2ban also prevents brute force attacks, but unlike DenyHosts, it does not focus on any one service. Instead, it can monitor log files that pertain to any system service with an authentication component.

**77-Which of the following locations contains device driver files that enable the system and users to access devices themselves?**

1. /etc/
2. /sys/
3. /*dev*/
4. /proc/

**78-What is one of the biggest issues when managing software on a Linux system?**

1. Instructions
2. *Dependencies*
3. Compilation
4. Downloads

**79-You need to temporarily pause a job, what command do you use?**

1. *Ctrl+Z*
2. &
3. renice
4. nohup

**80-What is the preferred method of package management in Debian-derivatives today?**

1. Yellowdog Updater, Modified (YUM)
2. Zypper
3. Advanced Package Tool (APT)
4. Dandified YUM (DNF)

**81-What common system setting can you disable to prevent users from rebooting a system and disrupting service availability?**

1. Protect the boot loader configuration with a password.
2. Consider establishing a public key infrastructure (PKI).
3. *Disable Ctrl+Alt+Del.*
4. Restrict access to cron.

**82-What is an application that enables you to view, create, or modify the contents of text files?**

1. Vim
2. *Text editor*
3. Motions
4. Editing operators

**83-Which of the following primarily protects SSH (secure shell) servers and any other system service with an authentication component from brute force password cracking attacks?**

1. *DenyHosts*
2. IPS
3. Fail2Ban
4. IP sets

**84-What is the default device location for encrypted volumes?**

1. /dev/
2. /dev/mapper/
3. /proc/
4. /dev/sda1/

**85-You need to review logs on a Linux system. Which of the following log files contains general non-critical system events?**

1. /var/log/kern.log
2. /var/log/syslog
3. */var/log/messages*
4. /var/log/secure

**86-There are five different states that a process can be in during this lifecycle. Which state indicates that a process was terminated, but it has not yet been released by its parent process?**

1. Uninterruptible sleep
2. Interruptible sleep
3. Running
4. Zombie
5. Stopped

**87-Which of the following processes always has the PID (Process ID) of 1?**

1. init daemon
2. pgrep
3. top
4. /etc/inittab

**88-Which of the following is known as a fourth context under Security-Enhanced Linux (SELinux)?**

1. User
2. *Level*
3. Role
4. Type

SELinux defines three main contexts for each file and process. Multi-level security (MLS) is an optional feature of SELinux that enables a fourth context, called a level.

**89-Vim is a modal editor, and its different modes decide its functionality. Which one of the below is NOT one of the four Vim modes?**

1. execute
2. visual
3. insert
4. *gedit*

**90-You have just used the lprm 4 command. What type of problem are you trying to remedy?**

1. Storage
2. Keyboard
3. *Printing*
4. Memory

**91-Which of the following commands can be used to securely wipe a storage device?**

1. luksFormat
2. cryptsetup
3. kdestroy
4. shred

**92-You are tasked with deploying a firewall solution that examines more than just destination and source IP (Internet Protocol) address to allow or deny traffic. You wish to examine the entire conversation of a transmission. What type of firewall is ideal for your needs?**

1. Application-layer firewall
2. Stateless firewall
3. Packet filter firewall
4. *Stateful firewall*

A stateful firewall can identify past traffic that is related to a packet. It can view the entire conversation of a transmission, such as a three-way TCP/IP handshake. Stateful firewalls can therefore make more informed decisions about what traffic to deny and what to allow.

93-Which of the following is a type of program that runs in the background without intervention from a user?

* 1. Systemd
  2. Runlevels
  3. Daemon
  4. Target

**94- You need to set up a new Git repository for a group of developers. Which command begins the process of setting up a new Git repository?**

1. git branch
2. git commit
3. *git init*
4. git config