1. What is the difference between public and private IP addresses?

2. How does NAT (Network Address Translation) work?

3. At which OSI layer do switches and routers operate?

4. How does TCP differ from UDP?

5. How would you troubleshoot a network connectivity issue?

6. What command would you use to check if a remote server is reachable?

7. How can you check which ports are open on a Linux machine?

8. What does the `ping` command do, and how can you interpret its output?

9. What is SSH, and why is it used?

10. How do you set up SSH key-based authentication?

11. Where is the SSH configuration file located?

12. What is DHCP, and how does it work?

13. What are the benefits of using DHCP instead of static IP assignment?

14. What is the function of DNS?

15. What are the key differences between NGINX and Apache?

16. Which one is better suited for handling high concurrent connections?

17. How does the `find` command work, and when would you use it?

18. How does `grep` differ from `find`?

19. What is the difference between `locate` and `find`?

20. What is shell scripting, and why is it useful?

21. What is the significance of the `#!/bin/bash` line in a script?

22. What is the purpose of the `/etc` directory?

23. What is stored in `/boot`?

24. What is the difference between `/mnt` and `/media`?

25. What package managers are used in Red Hat-based distributions?

26. What is virtualization?

27. What is `systemd`, and what role does it play in Linux?

28. What is the difference between RHEL and other Linux distributions?

29. How do you check the current Linux kernel version?

30. How do you find out the hostname of a system?

31. What are the different types of users in Linux?

32. What is the purpose of the `/etc/passwd` and `/etc/shadow` files?

33. How do you change file ownership and permissions?

34. What is the difference between hard links and soft links?

35. How do you schedule recurring jobs?

36. What is the role of the GRUB bootloader?

37. How do you reset the root password if you forget it?

38. What is the default package manager in RHEL?

39. What is the difference between `yum` and `dnf`?

40. How do you list all installed packages?

41. What is `LVM` (Logical Volume Manager), and why is it used?

42. How do you extend an LVM partition?

43. How do you check disk usage using `df` and `du`?

44. What is the purpose of `/etc/fstab`?

45. How do you check the current IP address of your system?

46. What command is used to configure a static IP address in RHEL?

47. How do you restart the network service in RHEL?

48. How do you generate SSH key pairs for passwordless authentication?

49. How do you allow or deny SSH access for specific users?

50. How do you change the default SSH port?

51. What are the different SELinux modes?

52. How do you check the current SELinux status?

53. How do you temporarily disable SELinux?

54. How do you check the system load average?

55. What command do you use to monitor system processes in real-time?

56. How do you find and terminate a running process?

57. How do you check memory usage in Linux?

58. What is `journalctl`, and how is it used?

59. How do you check system logs for troubleshooting?

60. What is the difference between `/var/log/messages` and `/var/log/syslog`?

61. How do you troubleshoot a slow system?

62. What is Bash scripting, and how is it useful for system administration?

63. What is the difference between `systemctl restart` and `systemctl reload`?

64. What is the purpose of `/etc/os-release`?

65. What does the `/proc` directory contain?

66. How do you check the last login details of a user?

67. What is `sudo`, and how do you grant a user sudo privileges?

68. What is the difference between a foreground and background process?

69. How do you check CPU usage by processes?

70. What does `nice` and `renice` do?

71. How do you display all network interfaces in RHEL?

72. Can you explain the Linux boot process step by step?

73. What is the use of `top` and `htop`?

74. What is the difference between `rpm` and `dnf`?

75. What are the different file permission types in Linux?

76. What is the difference between `chmod`, `chown`, and `chgrp`?

77. What is an Access Control List (ACL), and how do you set it?

78. What is NFS?

79. What is the purpose of `/etc/exports` in NFS?

80. What is Samba, and how does it differ from NFS?

81. What is an operating system (OS)?

82. What are the main differences between Windows and Linux?

83. What is a kernel in an operating system?

84. What is a shell in Linux?

85. What are the different types of shells available in Linux?

86. What is the difference between CLI (Command Line Interface) and GUI (Graphical User Interface)?

87. What is a process in an OS?

88. How do you display hidden files?

89. How do you create multiple directories at once?

90. How do you remove an empty directory?

91. How do you remove a directory and its contents?

92. How do you rename or move a file?

93. How do you copy a directory?

94. How do you copy a file?

95. How do you delete a file?

96. How do you view a file page by page?

97. How do you continuously monitor a file for new lines?

98. How do you check file permissions?

99. What is the difference between `chmod 777` and `chmod 755`?

100. How do you check free memory?

101. How do you view all running processes?

102. How do you display running processes dynamically?

103. How do you terminate a process by PID?

104. How do you run a command in the background?

105. How do you download a file from a URL?

106. How do you list all users on a system?

107. What is stored in the `/home` directory?

108. How do you view the kernel log messages?

109. How do you check failed login attempts?

110. How do you update all installed packages?

111. How do you check if a service is running?

112. How do you list all firewall rules?

113. You accidentally deleted an important file but you remember it was recently modified. How can you try to recover it?

114. A configuration file contains an incorrect setting. You need to find all occurrences of the word **"Error"** in a file and display the line numbers.

115. A user is unable to access a remote server via SSH. What troubleshooting steps would you take?

116. Your system is running out of disk space on `/var`. How do you check usage and free up space?

117. Your web server (NGINX) is running, but users cannot access the site. How do you check if the firewall is blocking HTTP requests?

118.   You need to schedule a script (`backup.sh`) to run every day at **2 AM**.

119.   What is the default file system used in RHEL?

120.   What is a file system in Linux?

121.   Name three commonly used Linux file systems.

122.   How can you check the file system type of a mounted partition?

123.   What is the `tar` command used for in Linux?

124.   How can you extract a tar archive to a specific directory (`/tmp/extract_here`)?

125.   How can you extract a specific file (`file.txt`) from an archive (`backup.tar.gz`)?