Linux Administration Practice Questions

BCA Course

April 2025

Practice Set 1

Part A: Command Exercises (10 questions)

Execute these commands on your terminal:

1. Display your current working directory
2. List all files in /var/log directory (including hidden files) with details
3. Create a directory called 'experiments' in your home folder
4. Create an empty file named 'test.txt' in the current directory
5. Copy the /etc/passwd file to your home directory
6. Rename 'test.txt' to 'data.txt' in the current directory
7. Display the last 10 lines of /var/log/syslog
8. Find all .conf files in /etc directory
9. Compress the 'data.txt' file using gzip
10. Show disk usage of /home directory in human-readable format

Part B: Shell Scripting (5 questions)

Write simple shell scripts (3-4 commands each):

1. A script 'backup.sh' that:
   (1) Creates a 'backup' directory
   (2) Copies all .txt files from current directory to it
   (3) Lists contents of backup
   (4) Shows disk usage of backup
2. A script 'clean.sh' that:
   (1) Lists all .tmp files in /tmp
   (2) Removes them
   (3) Confirms deletion by listing /tmp again
3. A script 'sysinfo.sh' that displays:
   (1) Current date
   (2) Logged in users
   (3) System uptime
   (4) Memory usage
4. A script 'compress.sh' that:
   (1) Creates a tar archive of /var/log
   (2) Compresses it with gzip
   (3) Lists the created archive

Practice Set 1 - Answers

Part A Answers

1. `pwd`
2. `ls -la /var/log`
3. `mkdir  /experiments`
4. `touch test.txt`
5. `cp /etc/passwd  /`
6. `mv test.txt data.txt`
7. `tail -10 /var/log/syslog`
8. `find /etc -name "*.conf"`
9. `gzip data.txt`
10. `du -h /home`

Part B Answers

1. ```
   #!/bin/bash
   mkdir backup
   cp *.txt backup/
   ls -l backup
   du -sh backup
   ```
2. ```
   #!/bin/bash
   ls /tmp/*.tmp
   rm -f /tmp/*.tmp
   ls /tmp
   ```
3. ```
   #!/bin/bash
   date
   who
   uptime
   free -h
   ```
4. ```
   #!/bin/bash
   tar -cf log_backup.tar /var/log
   gzip log_backup.tar
   ls -lh log_backup.tar.gz
   ```

Practice Set 2

Part A: Command Exercises (10 questions)

Execute these commands on your terminal:

1. Change to the /usr/local directory
2. Create a file 'list.txt' containing names of all files in /bin
3. Count number of lines in /etc/passwd
4. Search for "error" in /var/log/syslog
5. Create a symbolic link 'mylink' pointing to /etc/hosts
6. Display available disk space in human-readable format
7. Find all files larger than 10MB in /var
8. Change permissions of 'script.sh' to rwxr-xr–
9. Show environment variables containing "PATH"
10. Display the calendar for current month

Part B: Shell Scripting (5 questions)

Write simple shell scripts (3-4 commands each):

1. A script 'userinfo.sh' that displays:
   (1) Username
   (2) Home directory
   (3) Shell
   (4) Group memberships
2. A script 'logarchive.sh' that:
   (1) Creates /var/log/backups directory
   (2) Compresses all .log files into backup_YYYYMMDD.tar.gz
   (3) Lists created archive

Practice Set 2 - Answers

Part A Answers

1. `cd /usr/local`
2. `ls /bin > list.txt`
3. `wc -l /etc/passwd`
4. `grep "error" /var/log/syslog`
5. `ln -s /etc/hosts mylink`
6. `df -h`
7. `find /var -size +10M`
8. `chmod 754 script.sh`
9. `env | grep PATH`
10. `cal`

Part B Answers

1. ```
   #!/bin/bash
   echo "User:  $USER"
   echo "Home:  $HOME"
   echo "Shell:  $SHELL"
   groups $USER
   ```

2. ```
   #!/bin/bash
   mkdir -p /var/log/backups
   tar -czf /var/log/backups/backup_$(date +%Y%m%d).tar.gz /var/log/*.log
   ls -lh /var/log/backups
   ```

Practice Set 3

Part A: Command Exercises (10 questions)

Execute these commands on your terminal:

1. Show the first 5 lines of /etc/passwd
2. Create directory structure data/2025/{jan,feb,mar}
3. Count number of .conf files in /etc
4. Search for "permission denied" in /var/log/auth.log
5. Create a 100MB file named 'testfile' using dd
6. Display memory usage statistics
7. List all mounted filesystems

Part B: Shell Scripting (5 questions)

Write simple shell scripts (3-4 commands each):

1. A script 'backup_home.sh' that:
   (1) Creates timestamped directory in /backups
   (2) Copies /home to it
   (3) Compresses the backup
   (4) Verifies backup integrity
2. A script 'clearlogs.sh' that:
   (1) Lists all .log files in /var/log
   (2) Archives them
   (3) Truncates original files
   (4) Confirms operation
3. A script 'systemreport.sh' that displays:
   (1) CPU load
   (2) Memory usage
   (3) Disk space
   (4) System temperature (if sensors installed)
4. A script 'findlarge.sh' that:
   (1) Lists files > 100 MB in /var
   (2) Shows total count
   (3) Calculates total size
   (4) Saves report to /tmp/largefiles.txt

Practice Set 3 - Answers

Part A Answers

1. `head -5 /etc/passwd`
2. `mkdir -p data/2025/jan,feb,mar`
3. `ls /etc/*.conf | wc -l`
4. `grep "permission denied" /var/log/auth.log`
5. `dd if=/dev/zero of=testfile bs=1M count=100`
6. `lscpu`
7. `free -h`
8. `mount | column -t`
9. `find /home -type f -mtime -1`
10. `ip -br a`

Part B Answers

1. ```
   #!/bin/bash
   mkdir -p /backups/home_$(date +%F)
   cp -r /home /backups/home_$(date +%F)
   tar -czf /backups/home_$(date +%F).tar.gz /backups/home_$(date +%F)
   tar -tzf /backups/home_$(date +%F).tar.gz | head -5
   ```

2. ```
   #!/bin/bash
   ls -l /var/log/*.log
   tar -czf /var/log/archive_$(date +%F).tar.gz /var/log/*.log
   truncate -s 0 /var/log/*.log
   ls -lh /var/log/archive_*.tar.gz
   ```

3. ```
   #!/bin/bash
   uptime
   free -h
   df -h
   sensors 2>/dev/null || echo "No sensors found"
   ```

4. ```
   #!/bin/bash
   find /var -size +100M -exec ls -lh  + > /tmp/largefiles.txt
   find /var -size +100M | wc -l >> /tmp/largefiles.txt
   find /var -size +100M -exec du -ch  + | grep total >> /tmp/largefiles.txt
   cat /tmp/largefiles.txt
   ```