

# **DEVOPS TECHNIQUES APPLICATION ASSESSMENT**

## **LEARNING OUTCOME 1: PERFORM SERVER CONFIGURATION**

**SWDDT501 - SOFTWARE DEVELOPMENT RQF LEVEL 5**

---

**Student Name:** \_\_\_\_\_

**Class:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Total Marks: 100**

---

## **SECTION A: OBJECTIVE QUESTIONS (50 Marks)**

### **PART 1: MULTIPLE CHOICE QUESTIONS (20 Marks)**

*Choose the correct answer for each question. Each question carries 1 mark.*

1. What is a server in DevOps context?
  - a) A computer that only stores files
  - b) A computer that provides services to other computers over a network
  - c) A software application for coding
  - d) A type of database management system
2. Which of the following is NOT a type of server?
  - a) Web server
  - b) File server
  - c) Mail server
  - d) Code server
3. What does Linux represent in the context of DevOps?
  - a) A programming language
  - b) A family of open-source operating systems

- c) A cloud storage service
  - d) A database management system
- 4. What is the primary goal of DevOps?
  - a) To increase development costs
  - b) To shorten the development life cycle and provide continuous delivery
  - c) To separate development and operations teams
  - d) To eliminate testing processes
- 5. What does IaC stand for?
  - a) Internet as Code
  - b) Infrastructure as Code
  - c) Integration as Code
  - d) Installation as Container
- 6. Which command is used to display the Linux kernel version?
  - a) uname -k
  - b) kernel -v
  - c) uname -r
  - d) linux -version
- 7. What command displays detailed CPU architecture information?
  - a) cpuinfo
  - b) lscpu
  - c) showcpu
  - d) cpu -info
- 8. Which command is used to create a new directory in Linux?
  - a) createdir
  - b) newdir
  - c) mkdir
  - d) makedir
- 9. What does the `top` command do in Linux?
  - a) Creates a new file
  - b) Displays real-time system stats including processes and CPU usage
  - c) Deletes processes
  - d) Updates system packages
- 10. Which package management command installs packages on Debian-based systems?
  - a) yum install
  - b) rpm install
  - c) apt-get install
  - d) pacman install

11. What is the purpose of DNS (Domain Name System)?

- a) To encrypt data
- b) To translate domain names into IP addresses
- c) To manage file storage
- d) To create user accounts

12. Which service handles the sending, receiving, and storage of emails?

- a) Web server
- b) File server
- c) Mail server
- d) DNS server

13. What does SSH stand for?

- a) System Shell Handler
- b) Secure Shell
- c) Server Security Host
- d) Simple System Host

14. Which component is the core part of the Linux operating system?

- a) Shell
- b) Kernel
- c) File System
- d) GUI

15. The `df -h` command is used to:

- a) Delete files
- b) Display disk space usage in human-readable format
- c) Download files
- d) Defragment hard drives

16. What does the `ps` command do?

- a) Powers down the system
- b) Prints system information
- c) Displays a list of currently running processes
- d) Package search

17. Which command is used to change user passwords in Linux?

- a) `changepass`
- b) `passwd`
- c) `setpass`
- d) `usermod`

18. What is the purpose of a proxy server?

- a) To store databases
    - b) To act as an intermediary between clients and the internet
    - c) To compile code
    - d) To manage user accounts
19. Which Linux distribution is known for being user-friendly and based on Debian?
- a) Arch Linux
  - b) Fedora
  - c) Ubuntu
  - d) CentOS
20. What does DevSecOps represent?
- a) Development Security Options
  - b) Development, Security, and Operations
  - c) Developer Security Operations
  - d) Deployment Security Optimization
- 

## PART 2: TRUE OR FALSE (10 Marks)

*Write TRUE or FALSE for each statement. Each question carries 1 mark.*

1. DevOps combines development and operations to increase efficiency and speed of software delivery. \_\_\_\_\_
2. Linux is a proprietary operating system owned by Microsoft. \_\_\_\_\_
3. The `rm` command is used to remove files and directories in Linux. \_\_\_\_\_
4. A container packages code and its dependencies for consistent running across environments. \_\_\_\_\_
5. The `cat` command is used to create new users in Linux. \_\_\_\_\_
6. SSH provides an encrypted connection to remote systems for secure management.  
\_\_\_\_\_
7. Apache is an example of mail server software. \_\_\_\_\_
8. The `useradd` command creates new users in Linux. \_\_\_\_\_
9. The Virtual DOM is displayed on the screen in web browsers. \_\_\_\_\_

10. The `systemctl` command is used to manage system services in modern Linux distributions. \_\_\_\_\_
- 

### PART 3: FILL IN THE BLANKS (10 Marks)

*Fill in the missing words from the word bank below. Each blank carries 1 mark.*

#### WORD BANK:

kernel      collaboration      Samba      stability      passwd  
firewall    network            lscpu     apt-get        Postfix

1. The \_\_\_\_\_ is the core component of the Linux operating system that acts as a bridge between software and hardware.
  2. DevOps emphasizes \_\_\_\_\_ between development and operations teams to improve efficiency.
  3. \_\_\_\_\_ is a tool that allows Linux to share files with Windows systems.
  4. Linux is known for its \_\_\_\_\_, security, and flexibility in server environments.
  5. The \_\_\_\_\_ command is used to set or change a user's password in Linux.
  6. \_\_\_\_\_ is a popular mail transfer agent (MTA) used in Linux for email services.
  7. The \_\_\_\_\_ command displays CPU architecture information including cores and threads.
  8. A \_\_\_\_\_ helps protect servers by controlling incoming and outgoing network traffic.
  9. The \_\_\_\_\_ update command refreshes the package lists on Debian-based systems.
  10. DNS translates domain names to IP addresses over the \_\_\_\_\_.
- 

### PART 4: MATCHING (10 Marks)

*Match the Linux commands in Column A with their functions in Column B. Write the letter corresponding to the correct answer in the space provided. Each match carries 1 mark.*

**Column A (Commands)**

1. \_\_\_\_\_ ls
2. \_\_\_\_\_ pwd
3. \_\_\_\_\_ grep
4. \_\_\_\_\_ kill
5. \_\_\_\_\_ free -h
6. \_\_\_\_\_ ifconfig
7. \_\_\_\_\_ systemctl restart
8. \_\_\_\_\_ mkdir
9. \_\_\_\_\_ cat
10. \_\_\_\_\_ uname -r

**Column B (Functions)**

- a) Displays network interface configuration and IP addresses
  - b) Lists files and directories in the current location
  - c) Shows memory usage in human-readable format
  - d) Terminates a process by its process ID
  - e) Searches for specific patterns or text in files
  - f) Restarts a system service
  - g) Displays the current working directory path
  - h) Creates a new directory
  - i) Displays the contents of a file
  - j) Shows the Linux kernel version
- 

## **SECTION B: OPEN-ENDED QUESTIONS (50 Marks)**

### **PART 1: SHORT ANSWER QUESTIONS (20 Marks)**

*Answer all questions in this section. Each question carries 5 marks.*

**Question 1 (5 Marks)**

Explain what DevOps is and list at least THREE benefits of adopting DevOps practices in software development.

---

**Question 2 (5 Marks)**

Differentiate between a web server and a mail server. Provide one example of software used for each type of server.

---

### **Question 3 (5 Marks)**

What is SSH (Secure Shell) and why is it important in server configuration and management? Explain its main purpose.

---

### **Question 4 (5 Marks)**

Describe what a Linux distribution is and name THREE different Linux distributions. Explain which type of users each distribution targets.

---

## **PART 2: PRACTICAL QUESTIONS (30 Marks)**

### **Question 1 (10 Marks)**

You are tasked with performing basic file and directory management on a Linux server. Write the complete Linux commands to perform the following tasks:

- a) Create a directory called "devops\_workspace" (2 marks)
- b) Navigate into the "devops\_workspace" directory (2 marks)
- c) Create a file named "server\_info.txt" inside this directory (2 marks)
- d) Display the full path of your current working directory (2 marks)
- e) List all files in the current directory with detailed information (2 marks)

# Write your commands here:

- a)
- b)
- c)
- d)
- e)

---

### **Question 2 (10 Marks)**

As a system administrator, you need to manage users and groups on a Linux server. Write the Linux commands to perform the following tasks:

- a) Create a new user named "devuser" (3 marks)
- b) Set a password for the user "devuser" (2 marks)
- c) Create a new group called "developers" (2 marks)
- d) Display all currently logged-in users on the system (3 marks)

# Write your commands here:

- a)
- b)
- c)
- d)

---

### **Question 3 (10 Marks)**

**Scenario:** ABC Company has recently set up a new Linux server for hosting their web application. As the DevOps engineer, you are required to:

- a) Write the command to install Apache web server on an Ubuntu system (3 marks)
- b) Write the command to start the Apache service (2 marks)
- c) Write the command to enable Apache to start automatically on system boot (2 marks)
- d) Write the command to check the status of the Apache service (3 marks)

# Write your commands here:

- a)

b)

c)

d)

---

**END OF ASSESSMENT**