

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. _____
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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 _____.
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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
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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