ANSWER KEY

Linux Essentials Course - Mid-Term Exam

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Sheet A - Answer Key

Question 1: Practical Command Execution (10 points)

Command: `ls -l /etc/passwd`

Expected Output:

```
-rw-r--r-- 1 root root 2847 Oct 15 10:30 /etc/passwd
```

Explanation: This command displays detailed file information for `/etc/passwd` including:

- File permissions: `-rw-r--r--` (owner: read/write, others: read only)
- Owner and group: root
- File size: 2847 bytes
- Contains user account information (usernames, UIDs, home directories)

Question 2: Theoretical Knowledge (10 points)

Correct Answer: a) read, write, execute

Justification: In Linux file permissions, "rwx" represents the three basic permission types: read (r), write (w), and execute (x) for files and directories.

Sheet B - Answer Key

Question 1: Practical Command Execution (10 points)

Command: `whoami`

Expected Output:

```
student
```

Explanation: The `whoami` command displays:

- The username of the currently logged-in user
- Simple and quick way to verify your current user identity
- Useful for security verification and scripting

Question 2: Theoretical Knowledge (10 points)

Correct Answer: b) Kali Linux

Justification: Kali Linux is specifically designed for cybersecurity professionals and penetration testing, with pre-installed security tools and utilities.

Sheet C - Answer Key

Question 1: Practical Command Execution (10 points)

Command: `pwd`
Expected Output:

```
/home/student
```

Explanation: The `pwd` (Print Working Directory) command:

- Displays the absolute path of the current working directory
- Shows your current location in the filesystem hierarchy
- Essential for navigation and file operations

Question 2: Theoretical Knowledge (10 points)

Correct Answer: a) Super user do

Justification: "sudo" stands for "Super user do" and allows authorized users to execute commands with elevated (root) privileges temporarily.

Sheet D - Answer Key

Question 1: Practical Command Execution (10 points)

Command: `df -h`

Expected Output:

```
Filesystem Size Used Avail Use% Mounted on
/dev/sda1 50G 20G 28G 42% /
tmpfs 3.9G 0 3.9G 0% /dev/shm
/dev/sda2 100G 45G 50G 48% /home
```

Explanation: The `df -h` command displays:

- Disk space usage for all mounted filesystems

- Human-readable format (GB, MB instead of bytes)

- Shows total size, used space, available space, and usage percentage

Question 2: Theoretical Knowledge (10 points)

Correct Answer: b) Disk space usage in human-readable format

Justification: The `df -h` command reports filesystem disk space usage in human-readable format (KB, MB, GB) instead of block sizes.

Sheet E - Answer Key

Question 1: Practical Command Execution (10 points)

Command: `uname -a`

Expected Output:

```
Linux ubuntu 5.15.0-56-generic #62-Ubuntu SMP x86_64 GNU/Linux
```

Explanation: The `uname -a` command provides:

- Complete system information including kernel name, version, and architecture

- Operating system type (Linux)

- Machine hardware name and processor type

Question 2: Theoretical Knowledge (10 points)

Correct Answer: b) Complete system information including kernel version

Justification: The `uname -a` command displays all available system information including kernel version, hostname, and architecture.

Sheet F - Answer Key

Question 1: Practical Command Execution (10 points)

Command: `top`

Expected Output:

```
Tasks:  195 total, 1 running, 194 sleeping
%Cpu(s):  2.3 us, 1.0 sy, 0.0 ni, 96.7 id
MiB Mem :  7892.5 total, 3421.2 free
PID USER PR NI VIRT RES %CPU %MEM COMMAND
```

Explanation: The `top` command displays:

- Real-time system process monitoring

- CPU and memory usage statistics

- Running processes with resource consumption details

Question 2: Theoretical Knowledge (10 points)

Correct Answer: b) Monitor real-time system processes and resource usage

Justification: The `top` command provides dynamic real-time view of running system processes, CPU usage, memory consumption, and system load.

Grading Rubric	
Component	**Points**
Question 1 - Command Output	5 points
Question 1 - Explanation	5 points
Question 2 - Correct Answer	5 points
Question 2 - Justification	5 points
Total per Sheet	**20 points**