



**NAMIBIA UNIVERSITY  
OF SCIENCE AND TECHNOLOGY  
FACULTY OF COMPUTING AND INFORMATICS**

**DEPARTMENT OF COMPUTER SCIENCES**

<b>QUALIFICATION: BACHELOR OF COMPUTER SCIENCE</b>	
<b>QUALIFICATION CODE: 07BCMS</b>	<b>LEVEL: 7</b>
<b>COURSE CODE: LSA721S</b>	<b>COURSE NAME: Linux Systems Administration</b>
<b>SESSION: JANUARY 2024</b>	<b>PAPER: (PAPER 2)</b>
<b>DURATION: 3 HOURS</b>	<b>MARKS: 83</b>

<b>SECOND OPPORTUNITY/SUPPLEMENTARY EXAMINATION QUESTION PAPER</b>	
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<b>INSTRUCTIONS</b>	
<ol style="list-style-type: none"><li>1. Answer ALL the questions.</li><li>2. Read all the questions carefully before answering.</li><li>3. Number the answers clearly</li></ol>	

**THIS QUESTION PAPER CONSISTS OF 5 PAGES (Including this front page)**

**Section A: (Multiple choice)**

**(20 Marks)**

*Read each question carefully, and then select the ANSWER that best fits the question.*

1. The directory /media is the?  
a) mount point for removable media  
b) mount point for filesystem  
c) mount point for removable media & filesystem  
d) none of the mentioned
2. Which one of the directories does not contain binary files?  
a) /bin  
b) /sbin  
c) /etc  
d) none of the mentioned
3. The directory /opt is reserved for?  
a) installation of add-on application software packages  
b) optional booting files  
c) optional user specific files  
d) none of the mentioned
4. How do you get help about the command "cp"?  
a) help cp  
b) man cp  
c) cd ?  
d) none of the mentioned
5. The permission -rwxr-r- represented in octal expression will be?  
a) 777  
b) 666  
c) 744  
d) 711
6. Indicate the right option to search for BOB, Bob, BOB or BoB?  
a) grep -i Bob files  
b) grep 'B[oO][bB]' files  
c) grep '[BOB]' files  
d) grep -v 'Bob' files
7. How do you remove duplicate lines from the file foo using uniq?  
a) sort foo | uniq -u  
b) sort -u foo | uniq -d  
c) sort foo | uniq -c  
d) sort foo | uniq -l
8. Which command is used to check filesystem usage in a system?  
a) mount  
b) df  
c) du  
d) dd
9. Which file contains the filesystems to be automatically mounted during boot?  
a) /etc/mount  
b) /etc/fstab  
c) /etc/inittab  
d) /etc/boot
10. Which one of these is characteristic of RAID 5?  
a) Distributed parity  
b) No Parity  
c) All parity in a single disk
11. d) Double Parity The first line in any shell script begins with a \_\_\_\_\_?  
a) &  
b) !  
c) \$  
d) #
12. Which one of the following statements is true about variables in shell?  
a) variables do not require declaration before assigning value to them  
b) variables are case sensitive  
c) to extract the contents of a variable, we have to provide the variable a preceding \$  
d) all of the mentioned

13. Which command reads the user input from the terminal and assign this value to a variable name?
- a) read
  - b) get
  - c) declar
  - d) set
14. What is the command used to determine the path of an executable?
- a) which
  - b) where
  - c) wexec
  - d) what
15. The command used to count the number of characters in a file is?
- a) grep
  - b) wc
  - c) count
  - d) cut
16. Which of these commands could you use to show one page of output at a time?
- a) less
  - b) sed
  - c) pause
  - d) grep
17. The pwd command displays?
- a) user password
  - b) password file content
  - c) present working directory
  - d) none of the mentioned
18. Which of the following commands can be used to change default permissions for files and directories at the time of creation?
- a) Chmod
  - b) Chown
  - c) Umask
  - d) Chgrp
19. Physical Volumes are
- a) The space on a physical storage that represent a logical volume
  - b) Disk or disk partitions used to construct logical volumes
  - c) A bunch of disks put together that can be made into a logical volume
  - d) None of the mentioned
20. If read and write performance is the only criterion, which would you choose?
- a) RAID 0**
  - b) RAID 1
  - c) RAID 5
  - d) RAID 50

**Section B: True or False**

**(10 Marks)**

*Read each statement below carefully and state whether it is false or true.*

1. Only one unprivileged user may be logged into a Linux system at any given time.
2. Shell is the software that provides an interface for the user of an operating system which needs services of a kernel.
3. HCL stands for High Computing Load.
4. Linux distributions can be broadly categorized into three groups.
5. GNU is established in 1984 by Linus Torvalds.
6. One of the most significant design decisions you must make when managing a server may not even be administrative, but technical.
7. The `wc` command is used to find out the number of users logged on.
8. We can use the `>` symbol along with pipe in a command
9. RED HAT is one of the original Linux distributions.
10. There are three types of variables in Linux.

**Section C**

**[53 marks]**

*Answer all the questions in this section*

1. Write down the commands to perform the following:

- i. List all processes running. [1]
- ii. Check the FQDN of the machine. [1]
- iii. To display the contents of the **crontab** file of the currently logged in user. [1]
- iv. Give a command used to display all system variables. [1]
- v. Counting number of lines of the `abc.txt` file. [1]
- vi. Remove `Dir2` directory and its subdirectories. [1]

2. Explain what the following commands are doing:

- (i) `rpm -qa` [2]
- (ii) `sleep 300 &` [2]
- (iii) `mount /dev/sr0 /mnt/project` [2]
- (iv) `sort -r fruits.txt` [2]
- (v) `student=john` [2]
- (vi) `dd if=/dev/hdc3 of=/home/bob/filesystem.img` [2]

3. Name two steps that can be taken to improve the performance of your server. [4]

4. Study the script below and explain it's purpose. [4]

```
for i in FLP Java Python Perl
do
    mkdir $file
done
```

5. Write a shell script that will ask a user to enter a number and then print a multiplication table of that number from 1 to 5. [8]

**Sample output**    **7 x 1 = 7**  
                  ...  
                  **7 x 5 =35**

6. Name three reasons why to use RAID. [3]  
7. What is the difference between RAID0 and RAID1 [2]  
8. Write a cronjob that will run a script Runscript8472 every month on the first of every month at 25 past midnight. [4]  
9. What is LVM? [2]  
10. What is the uid and gid of the root user on Linux server? [2]  
11. With the default umask of 0124, what would be the default permissions for newly created files and directories? [6]

