



BRAINWARE UNIVERSITY

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Brainware University
398, Ramkrishnapur Road, Barasat
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Term End Examination 2023-2024

Programme – M.Sc.(ANCS)-2023

Course Name – Linux System Engineering-I

Course Code - MNCS103

(Semester I)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) Assess the implications of hard and soft space limits in the context of disk quotas.
- | | |
|-------------------------------------|--|
| a) Ensures fair resource allocation | b) Provides advanced file recovery options |
| c) Promotes system stability | d) Enhances network performance |
- (ii) Identify the differentiation between a monolithic kernel and a microkernel.
- | | |
|---|--|
| a) A monolithic kernel handles all of the operating system's tasks, while a microkernel only handles the essential tasks and delegates the rest of the tasks to user-space processes. | b) A monolithic kernel is more efficient than a microkernel. |
| c) A microkernel is more secure than a monolithic kernel. | d) All of the above |
- (iii) Recognize the command used to list all of the files in a directory.
- | | |
|-------|--------|
| a) ls | b) dir |
| c) cd | d) pwd |
- (iv) Identify the subsequent step after BIOS/UEFI initialization in the Linux booting process.
- | | |
|--------------------------------|--------------------------|
| a) Loading the boot loader | b) Kernel initialization |
| c) Initiating the init process | d) User authentication |
- (v) Specify what an IP address range signifies in network configuration.
- | | |
|----------------------------|------------------------|
| a) Maximum device capacity | b) Geographic location |
| c) Data encryption method | d) Default web browser |
- (vi) Identify the command that is used to start a new shell.
- | | |
|---------|--------|
| a) bash | b) zsh |
| c) fish | d) sh |
- (vii) Select the importance of partitioning in Linux.
- | | |
|----------------------------------|-------------------------|
| a) Efficient storage utilization | b) Network optimization |
| c) Memory management | d) CPU performance |

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- (viii) Identify the command to change a user's shell in a Linux environment.
 - a) shellmod
 - b) chsh
 - c) setshell
 - d) usershell
- (ix) Identify the purpose of the "passwd" command in user management
 - a) Configuring network devices
 - b) Setting system preferences
 - c) Modifying user passwords
 - d) Managing user profiles
- (x) Choose the appropriate command to create a new user in a Linux system.
 - a) useradd
 - b) chmod
 - c) passwd
 - d) ls
- (xi) select a popular Linux distribution.
 - a) Fedora
 - b) Internet Explorer
 - c) Photoshop
 - d) Microsoft Word
- (xii) Analyze the primary function of the "ls" command in Unix-based systems.
 - a) Listing files and directories in the current directory
 - b) Displaying file contents
 - c) Changing the working directory
 - d) Removing a file
- (xiii) Select the primary purpose of the "touch" command in Unix-like systems.
 - a) Creating a new file
 - b) Changing file permissions
 - c) Updating access and modification timestamps of a file
 - d) Removing a file
- (xiv) Choose the function of cp command
 - a) Change file permissions
 - b) Create a new directory
 - c) Copy files and directories
 - d) Remove files
- (xv) Select the file system that provides journaling and improved recovery capabilities.
 - a) ext2
 - b) ext3
 - c) ext4
 - d) ext3 & ext4

Group-B

(Short Answer Type Questions)

3 x 5=15

- 2. Classify the primary stages involved in the Linux booting process. (3)
- 3. Describe the process of creating, modifying, and deleting ordinary files in a Linux file system. (3)
- 4. State the Concepts of Shell and Kernel. (3)
- 5. Explain how the /etc/passwd and /etc/shadow files are used in managing user accounts. (3)
- 6. Execute a command to display disk quotas for all users on a Linux system. (3)

OR

In the context of disk quotas, describe how Linux ensures that a user does not exceed their allocated storage limit. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

- 7. Evaluate the role of "GRUB" (5)
- 8. Explain the importance of the /etc/group file in Linux, (5)
- 9. Discuss the key differences between ext2, ext3, and ext4 file systems in Linux. (5)
- 10. Evaluate the role of password expiration in Unix-like systems for enhancing security. (5)
- 11. Explain how the configuration of an RPM and YUM server differs from setting up a client system for package management. (5)
- 12. Write the steps involved in configuring a static IP address for a device in a network, (5)

OR

Describe the process of configuring a device to obtain its IP address dynamically through DHCP (5)

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