M.Sc. DEGREE EXAMINATION, NOVEMBER 2024
INFORMATION TECHNOLOGY
THIRD SEMESTER

COURSE   : MAJOR CORE
PAPER   : NETWORK MANAGEMENT AND ADMINISTRATION
SUBJECT CODE: 23CS/PC/NA34
TIME   : 1 1/2 HOURS   MAX. MARKS: 50

Q. No.	SECTION A (6 X 5 = 30) Answer all the questions:	CO	KL
1	Outline the structure and significance of the Linux directory hierarchy. **(OR)** Name the different methods of Linux installation and provide a brief explanation of each.	CO1	K1
2	Explain how the PATH and PS1 environment variables are used to configure the bash shell prompt in Linux. **(OR)** Describe the process of creating a filesystem using mkfs and explain how it is mounted using the /etc/fstab file.	CO2	K2
3	Demonstrate how to use the ifconfig and ping commands to set up and verify a Local Area Network (LAN) configuration in Linux. **(OR)** Illustrate the process of configuring a static IP address on a Linux system using the /etc/network/interfaces file.	CO3	K3
4	Demonstrate how to securely transfer files between two machines. **(OR)** Illustrate the steps to configure the GRUB bootloader and modify its configuration to change the default operating system during boot.	CO3	K3
5	Examine the role of the Dynamic Host Configuration Protocol (DHCP) in assigning IP addresses dynamically to clients and explain how a DHCP server is configured to provide IP addresses in a specific range. **(OR)** Analyze the security implications of improperly configured firewall rules in a Linux environment and explain how these could lead to vulnerabilities.	CO4	K4
6	Assess the significance of configuring the hostname and network settings during Linux installation. Explain how improper configuration can affect system functionality and network connectivity. **(OR)** Evaluate the differences between ext3, ext4, Reiserfs, and FAT32 file systems in terms of performance, reliability, and features. Explain how choosing a particular file system affects system operations and data management.	CO4	K4

Q. No.	SECTION B (2 X 10 = 20) Answer all the questions:	CO	KL
7	Illustrate the steps for configuring and testing FTP access on a Linux system. Include the setup of FTP server, configuring user permissions, and testing both local and remote FTP connections. **(OR)** Evaluate the process of setting up and configuring user accounts and permissions, including the use of umask, setuid, setgid, and sticky bits.	CO3	K3
8	Analyze how shell scripting can be used to automate network configuration tasks. Discuss the use of shell variables, comments, positional parameters, and decision-making constructs in creating effective and reliable scripts. **(OR)** Analyze the process of managing file systems and core system services on a Linux system.	CO4	K4

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