STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086 (For candidates admitted during the academic year 2019 – 2020 and thereafter)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023 INFORMATION TECHNOLOGY THIRD SEMESTER

COURSE : MAJOR CORE

PAPER : NETWORK MANAGEMENT AND ADMINISTRATION

SUBJECT CODE: 19CS/PC/NA34

TIME : 3 HOURS MAX. MARKS: 100

SECTION - A

Answer all the following:

(10 * 2 = 20)

- 1. What are the benefits of networking in a computer environment?
- 2. What is the primary purpose of an Ethernet address in a computer network?
- 3. List out some of the commands for managing users.
- 4. What is meant by Sticky bit?
- 5. What is Subnetting in TCP/IP networking, and why is it used?
- 6. What is the purpose of the echo command in shell scripting, and how is it used?
- 7. What is the primary difference between Telnet and Secure Shell (SSH) in remote access?
- 8. What is the purpose of the init process during system initialization?
- 9. What are the three categories of NAT?
- 10. What is the significance of DHCP lease management, and why is it important for network administration?

SECTION - B

Answer any SIX from the following:

(6*5=30)

- 11. Describe the differences between LAN, MAN, and WAN networks in terms of their geographical coverage and provide an example of each.
- 12. Describe the roles and responsibilities of core system services. Explain how each service contributes to the overall functionality and management of a Linux system.
- 13. How ARP works? What are the basic steps of ARP?
- 14. Describe the roles and responsibilities of both DHCP servers and DHCP clients.
- 15. Differentiate Active FTP and Passive FTP
- 16. Describe the steps involved in the typical boot process of a computer.
- 17. Discuss about the Decision making statements in shell scripting.
- 18. Explain the concept of file access permissions in a Linux system. Describe the meaning and purpose of the read, write, and execute permissions for files and directories.

SECTION - C

Answer any FIVE from the following:

(5 * 10 = 50)

- 19. Explain the addressing mechanisms used in computer networks. Discuss their roles and how they are assigned.
- 20. What is meant by Volume Management? Explain about creating a partition, Physical volume and Logical volume.
- 21. Discuss the layers of TCP/IP model with a neat diagram.

- 22. Compare and contrast public key authentication and password-based authentication in the context of Secure Shell (SSH). Discuss the advantages and disadvantages of each method and the steps involved in setting up public key authentication.
- 23. Elaborate the SSH client program in open SSH and explain how secure tunnel can be created with a neat diagram.
- 24. Discuss the process of configuring and starting an FTP server using vsftpd. Include steps for securing the server and testing its functionality.
- 25. Discuss about configuring and working of Netfilter.
