Title of Paper: Major Practical 4

Sr.No.	Heading	Particulars
1	**Description the course :** **Including but Not limited to:**	Computer Networking Practical course focuses on providing hands-on experience with various networking concepts and techniques. Students typically practice configuring, troubleshooting, and testing network protocols and hardware in real-world scenarios. The practical component of this course emphasizes network setup, monitoring, and management skillsWireless Networks and Mobile Communications A Java Programming Practical course typically provides hands-on experience in writing, debugging, and executing Java programs. The goal is to help students become proficient in Java programming and apply theoretical concepts to solve real-world problems. The practical sessions in this course usually focus on programming skills and the application of Java principles in various scenario
2	**Vertical :**	Major
3	**Type :**	Practical
4	**Credits :**	2 credits (30 Hours of Practical work in a semester)
5	**Hours Allotted :**	30
6	**Marks Allotted:**	50 Marks
7	**Course Objectives(CO):** 1. Understand core Java programming concepts, including data types, control structures, and object-oriented programming principles. 2. Develop the ability to implement inheritance, polymorphism, interfaces, and abstract classes effectively. 3. Gain hands-on experience with exception handling, multithreading, and dynamic initialization. 4. Learn to apply Java programming to solve real-world problems, such as matrix operations and finding areas/volumes. 5. Enhance debugging and problem-solving skills using Java's rich standard libraries and features. 6. Basic foundation of LAN 7. various command line utilities to be tested 8. Practical implementation of IP Subnetting 9. Testing of various Routing Protocols	
8	**Course Outcomes (OC):** CO 1. Write efficient Java programs to perform arithmetic operations, manage control flow, and manipulate strings. CO 2. Demonstrate knowledge of object-oriented concepts by implementing inheritance, polymorphism, and interfaces. CO 3. Apply exception handling mechanisms to create robust Java applications. CO 4.1Implement multithreading and explore dynamic initialization for advanced Java programming.	

	CO 5. Solve computational problems, such as matrix operations and factorial calculation, using packages and Java constructs. CO 6. Implementation of utility protocols CO 7 Understanding Basic Security features CO 8 Network Traffic and Packet Analysis CO 9 Basic Understanding of Wireless Network	

9	**Module 1**
	1. Write a program
	    a. in Java to demonstrate Boolean value.
	    b. Print a string 10 times using a for loop.
	    c. Write a program in Java to evaluate a+b*c%d.
	2. Write a program
	    a. in Java to find the biggest element among three numbers using if else.
	    b. Write a program in Java to find the biggest element among three numbers using the ternary operator.
	    c. Write a program in Java to check the grade of marks using a switch case.
	3. Write a program
	    a. in Java to demonstrate dynamic initialization.
	    b. Write a program in Java to create a class and access all data members and methods using the object and compute the area and perimeter of a circle.
	    c. Write a program in Java to access member variables using the constructor.
	4. Write a program
	    a. in Java to multiply two matrices.
	    b. Write a program in Java to calculate the area of a rectangle using single inheritance.
	    c. Write a program in Java to demonstrate multilevel inheritance.
	5. Write a program
	    a. in Java to demonstrate hierarchical inheritance.
	    b. Write a program in Java to find the area and perimeter of a circle using an abstract class.
	    c. Write a program in Java to show that a private member of a class cannot be inherited.
	6.Write a program
	    a. in Java to find the volume of a box using this keyword.
	    b. Write a program in Java to find the average of three numbers using the method overloading
	    c. Write a program in Java to find average of three numbers using method overriding.
	    d. Create a class figure. Create two subclasses rectangle and triangle. Find the area of a rectangle and half the area of the rectangle using the reference of the figure.
	7.Write a program
	    a. Create an interface area. Find the area of a circle.
	    b. Write a program in Java to find the sum and average of three numbers using the super keyword.
	12. Write a program
		30 Hrs

	a. in Java to find the volume of a box using constructor overloading.
	b. Write a program in Java to demonstrate exception handling in case of variable/constant divided by zero.
	13. Write a program in Java
	    a. to implement multiple inheritance using the interface.
	    b. Write a program in Java to check if a given string is palindrome or not.
	14. Write a program in Java
	    a. for sorting a given list of strings in ascending order.
	    b. Write a program in Java to find the factorial of a number using the package.
	15. Write a program in
	    a. Java to import the package.
	    b. Write a program in Java to implement thread.
	    c. Write program to implement Flow, Grid and Border Layout using swing.
	    d. Write program to demonstrate following events Action
	Mouse Key	

	Module 2	**30 Hrs**

	1. Configuring LAN setup
	    a. Planning and Setting IP networks
	    b. Configuring subnet
	    c. Using, linux-terminal or Windows-cmd, execute following networking commands and note the output: ping, traceroute, netstat, arp, ipconfig, Getmac, hostname, NSLookUp, pathping, SystemInfo
	2. IPv4 Addressing and Subnetting
	    a. Given an IP address and network mask, determine other information about the IP address such as:
	        a. Network address • Network broadcast address • Total
	        b. number of host bits • Number of hosts
	    b. Given an IP address and network mask, determine other information about the IP address such as:
	    c. The subnet address of this subnet •
	    d. The broadcast address of this subnet •
	    e. The range of host addresses for this subnet •
	    f. The maximum number of subnets for this subnet mask •
	    g. The number of hosts for each subnet •
	    h. The number of subnet bits •The number of this subnet
	3. Configure Static IP routing using .
	4. Configure IP routing using RIP.
	5. Configuring Simple and multi-area OSPF
	6. Configuring BGP protocol (Multi-Autonomous)
	7. Configuring server and client.
	    a. Configure DHCP
	    b. Configure DNS
	    c. Configure HTTP
	    d. Configure Telnet
	    e. Configure FTP
	8.Configure basic security features for networks
	9.Using Wireshark, network analyzer, set the filter for ICMP, TCP, HTTP, UDP, FTP and perform respective protocol transactions to show/prove that the	

	network analyzer is working 10.create a wireless network of multiple PCs using appropriate access point. 11.IPV6 Addressing Basics

10 & 11	**Text Books& References Books :** 1. Java: The Complete Reference Herbert Schildt MC-Graw HILL 12th EDITION 2022 2. Core Java, Volume I: Fundamentals Hortsman Pearson 9th 2013 3. Core Java, Volume II: Advanced FeaturesGary Cornell and Hortsman Pearson 8th 2008 4. Cisco CCNA 200-301 Official Cert Guide

12	**Internal Continuous Assessment: 40%**	**Semester End Examination: 60%**
13	**Continuous Evaluation through:** Students are expected to attend each practical and submit the written practical of the previous session. Performing Practical and writeup submission will be continuous internal evaluation. 2.5 marks can be awarded for each practical performance and writeup submission totaling to 50 marks and can be converted to 20 marks.	30 marks practical exam of 2 hours duration
14	**Format of Question Paper: Duration 2 hours. Certified copy of Journal is compulsory to appear for the practical examination** Practical Slip: Q1. From Module 1 13 marks Q2. From Module 2 12marks Q3. Journal and Viva 05 marks	