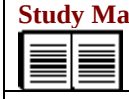
Unit: Oracle Solaris Network Administration **Exam Paper No.:** 5	**Guided Learning Hours:** 280 **Number of Credits:** 28
Prerequisites: Detailed knowledge of Solaris commands and Solaris Network Administration	**Corequisites:** A pass or higher at Diploma level.
Aim: The aim of the Oracle Solaris Network Administration unit is to provide learners with the knowledge and skills necessary to perform network administration tasks, such as configuration and troubleshooting of a Local Area Network (LAN); as most Oracle database systems sit on top of Solaris Operating System. In this unit, learners gain the knowledge critical to properly implement and manage important capabilities in the Oracle Solaris Operating System. The unit provides System Administrators, Database Administrators, and Support Personnel with advanced configuration, maintenance, and troubleshooting skills and procedures for Oracle Solaris system. Solaris Operating System is the most efficient, secure, and reliable operating system ever built; combined with Oracle; the best and most reliable Database System; this unit gives learners direct experience with the most essential system administration tasks in the networking field; including hands-on experience with topics, such as Internet Protocol (IP) routing, Domain Name System (DNS), Dynamic Host Configuration Protocol (DHCP), IP version 6 (IPv6) and the Solaris IP Filter firewall.	
Required Materials: Recommended Learning Resources.	**Supplementary Materials:** Lecture notes and tutor extra reading recommendations.
Special Requirements: The unit requires a combination of lectures, demonstrations, discussions, and hands-on labs.	

Intended Learning Outcomes:	**Assessment Criteria:**
1 Configuration, administration and basic troubleshooting a network.	1.1 Explain network topology 1.2 Describe how to handle name services 1.3 Explain how IPv4 and IPv6 addressing system works 1.4 Demonstrate how to configure daemons, files and TCP/IP services
2 Monitoring a system by displaying all sockets, routing table entries for the *inet* address family for IPv4 and inet6 address family for IPv6.	2.1 Describe TCP/IP administrative tasks 2.2 Demonstrate how to monitor interfaces and IP addresses 2.3 Demonstrate how to use TCP/IP monitoring tools and commands 2.4 Demonstrate how to display Statistics by Protocol 2.5 Demonstrate how to display the Status of Sockets 2.6 Demonstrate how to display Network Interface Status 2.7 Demonstrate how to Display the Status of Transmissions for Packets of a Specific Address Type
3 Configuring IP tunnels; GRE tunnels; licensing requirements for IP tunnels; prerequisites for IP tunnels and the history of IP Tunnels.	3.1 Define IP tunnelling 3.2 Demonstrate how to create tunnels 3.3 Demonstrate how to configure IP tunnelling 3.4 Describe how to manually configure IP in IP tunnels. 3.5 Explain Virtual Private Network (VPN) concepts 3.6 Describe L2 and L3 tunneling

	mechanisms
4 Dynamic Host Configuration Protocol (DHCP) server computers centrally manage IP addresses, other related configuration parameters and	4.1 Explain the DHCP concepts 4.2 Describe advantages and disadvantages of using DHCP 4.3 Explain how DHCP server works 4.4 Demonstrate how to configure DHCP services 4.5 DescribeDHCP Manager tasks and utilities 4.6 Demonstrate ho to enable, disable, configure and administer DHCP client 4.7 Demonstrate how to troubleshoot DHCP server and client problems 4.8 Analyse and identify files associated with DHCP 4.9 Describe the two primary differences between DHCP and BOOTP 4.10 Explain how DHCP client computers request IP addresses.
5 The Network IP Security (IPSec) architecture; IP Security Protocol Suite, IPSec Support Components and IPSec Core Protocols.	5.1 Describe IPSec tools and components 5.2 Describe IPSec security associations 5.3 Evaluate procedures for implementing IPSec 5.4 Describe Internet Key Exchange (IKE) 5.5 Demonstrate how to configure IKE 5.6 Describe IP filtering 5.7 Demonstrate how to create and edit IP filtering configuration files
6 How network monitoring system help administrators to identify, eliminate and prevent malfunction of hardware and software before end users encounter the problem.	6.1 Describe load balancing capabilities and algorithms 6.2 Describe Solaris load-balancing features 6.3 Demonstrate how to install and configure Integrated Load Balancer (ILB) 6.4 Describe Virtual Router Redundancy Protocol (VRRP) technology 6.5 Demonstrate how to configure VRRP 6.6 Explain network congestion 6.7 Describe congestion control mechanism
7 How IP Quality of Service (IP QoS) provide ways to give preferential treatment to certain types of IP traffic.	7.1 Define quality of service 7.2 Describe Differentiated Services (Diffserv) architecture 7.3 Describe how to create IPQoS configuration files 7.4 Describe flow accounting and statistical information
Methods of Evaluation: A 2½-hour written examination paper with five essay questions, each carrying 20 marks. Candidates are required to answer all questions. Candidates also undertake project/coursework in Oracle Solaris Network Administration with a weighting of 100%.	

Recommended Learning Resources: Oracle Solaris Network Administration

Text Books	• Oracle Solaris Cluster Essentials (Solaris System Administration) by Tim Read. ISBN-10: 0132486229 • DTrace: Dynamic Tracing in Oracle Solaris, Mac OS X and FreeBSD by Brendan Gregg, Jim Mauro, Chad Mynhier, Tariq Magdon-Ismail. ISBN-10: 0132091518 • OCA Oracle Solaris 11 System Administrator Exam Guide by Paul Watters. ISBN-10: 0071775749
Study Manuals 	BCE produced study packs
CD ROM 	Power-point slides
Software 	Solaris Operating System / Oracle Database