



# SLIATE

**SRI LANKA INSTITUTE OF ADVANCED TECHNOLOGICAL EDUCATION**

(Established in the Ministry of Higher Education, vide in Act No. 29 of 1995)

**Higher National Diploma in Information Technology**  
**Second Year, Second Semester Examination – 2016**  
**HNDIT 2402- Free & Open Source System**

**ANSWER SCRIPT**

**PART A**

**Q1).**

- |          |           |
|----------|-----------|
| I.    b  | VI.   b   |
| II.   d  | VII.   c  |
| III.   c | VIII.   b |
| IV.   c  | IX.   c   |
| V.    a  | X.    c   |

**[Total Marks=2×10]**

**PART B**

**Q2).**

I.

- Multiuser
- Open Source
- Inexpensive
- Multitasking

**(Any 02 answers 02 marks)**

II.

- A Copyright is a protection for any published work that helps to prevent that work from being used without prior authorization.
- Software is also protected by Copyright laws.
- A Copyright is a protection of intellectual property. **(Any 02 answers 02 marks)**

- Copyleft is the practice of offering people the right to freely distribute copies and modified versions of a work with the stipulation that the same rights be preserved in derivative works down the line.
- Free does not necessarily mean free of cost, but free as in freely available to be modified.
- Copyleft is often used in relation to software in the public domain.

**(Any 02 answers 02 marks)**

### III.

- Selling the FOSS for low cost
- Providing the FOSS total free and selling services
- Dual-licensing
- FOSS is total free and proprietary extensions
- Donations to developers

**(Any 03 answers 06 marks)**

- IV. Swap space in Linux is used when the amount of physical memory (RAM) is full. If the system needs more memory resources and the RAM is full, inactive pages in memory are moved to the swap space. **(02 marks)**

The boot partition is a primary partition that contains the boot loader, a piece of software responsible for booting the OS./boot with 250 MB **(02 marks)**

The root directory is the directory on Unix-like operating systems that contains all other directories and files. **(02 marks)**

A home directory, also called a login directory, is the directory on Unix-like operating systems that serves as the repository for a user's personal files. **(02 marks)**

**[Total 20 marks]**

**Q3).**

I.

- sh
- bash
- csh and tcsh
- korn shell

**(Any 02 answers 02 marks)**

II.

- a. A pipe is a form of redirection that is used in Linux and other Unix-like operating systems to send the output of one program to another program.

Pipe is a technique for passing information from one program process to another.

Combine with | operator

**(Any 02 answer 02 marks)**

- b. Redirection simply means capturing output from a file, command, program, script and sending it as input to another file.

There are two redirection > and >>

Example file1 > file2

**(Any 02 answer 02 marks)**

III.

- a. mkdir SLIATE

cd SLIATE

mkdir HNDIT

cd HNDIT

mkdir firstyear,secondyear

**(04 marks)**

- b. cd firstyear

touch student.txt

**(02 marks)**

- c. cd ..

cd secondyear

touch result.txt

**(02 marks)**

- d. Vi student.txt

Enter i to change insert mode

Type your name

Press Esc

Type :wq

(02 marks)

e. cp firstyear/student.txt /secoandyear

(02 marks)

f. mv student.txt newstudent.txt

(02 marks)

[Total 20 marks]

#### Q4).

I.

- In Linux (and Unix in general), there is a SuperUser named root. The Windows equivalent of root is the Administrators group.
- The root account physically exists it is still possible to run programs with root-level privileges.
- Command is Sudo with password. (02 marks)

II.

- a. r read - you may view the contents of the file (02 marks)
- b. w write - you may change the contents of the file. (02 marks)
- c. x execute - you may execute or run the file if it is a program or script. (02 marks)
- d. No permission-permission empty (02 marks)

III.

- a. ls -l (02 marks)
- b. chmod g+x foss.txt  
chmod 674 foss.txt (02 marks)
- c. chmod o+w foss.txt  
chmod 676 foss.txt (02 marks)
- d. chmod g-w foss.txt  
chmod 656 foss.txt (02 marks)

IV.

- Better security
- Protected from virus attack
- Much more stable than any other OS
- Flexible desktop

- Free and Open source

**(Any 02 answers 04 marks)**

**[Total 20 marks]**

**Q5).**

**I.**

- tar
- gzip

**(02 marks)**

**II.**

- A netmask is a 32-bit mask used to divide an IP address into subnets and specify the network's available hosts.
- Netmask is a term used in computer networking to define the class and range of Internet Protocol (IP) addresses.
- In a netmask, two bits are always automatically assigned. For example, in 255.255.225.0, "0" is the assigned network address. In 255.255.255.255, "255" is the assigned broadcast address.

**(Any 02 answers 02 marks)**

- When a host wants to reach a destination that is outside of its own network, it has to use a default gateway.
- In addition to acting as a gateway to the Internet, it provides security features and other functionality.
- In computer networking, a default gateway is the device that passes traffic from the local subnet to devices on other subnets.

**(Any 02 answers 02 marks)**

**III.**

- Load-balancing
- Authentication
- Decryption or caching
- Open proxies and reverse proxies.
- Monitoring and filtering.
- Improving performance.
- Translation.

- Accessing services anonymously.
- Security.

(Any 04 answers 04 marks)

#### IV.

- a. yum install squid (02 marks)
- b. vi /etc/squid/squid.conf (02 marks)
- c. acl fb dstdomain .facebook.com  
http\_access deny fb (02 marks)
- d. service squid start (02 marks)
- e. service squid status (02 marks)

[Total 20 marks]

#### Q6).

##### I.

Apache Http server

Apache Tomcat server

NGINX

Node.js

Lighttpd

(Any 02 answers 02 marks)

##### II.

- Postfix is used for sending e-mail, and for the local computer to receive e-mail.
- Postfix is a "Mail Transfer Agent"
- Software that sends and receives emails to and from other computers on the network using the Simple Mail Transfer Protocol (SMTP)

(Any 02 answers 02 marks)

- Dovecot is the server used by users to retrieve their e-mail from a mail server to their local computer or e-mail program.
- Dovecot is a Mail Delivery Agent.
- Dovecot provides POP3 or IMAP4 access to your mail.

(Any 02 answers 02 marks)

##### III.

- Samba is software that can be run on a platform other than Microsoft Windows, for example, UNIX, Linux.
  - Allows for interoperability between Linux/Unix servers and Windows-based clients.
  - Samba use SMB protocol for file sharing between different OS.
  - Serve directory trees and printers to Linux, UNIX, and Windows clients.
  - Assist in network browsing (with or without NetBIOS)
  - Authenticate Windows domain logins.
- (Any 04 answers 04 marks)**

#### IV.

- a. `sudo apt-get install isc-dhcp-server -y`  
`yum install dhcp` **(02 marks)**
- b. `vi /etc/dhcp/dhcpd.conf` **(02 marks)**
- c. 10 ip address **(02 marks)**
- d. 192.168.1.0 **(02 marks)**
- e. Chconfig dhcpd on **(02 marks)**

**[Total 20 marks]**