# 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 – 2017**

**HNDIT2402 - Free and Open Source Systems**

| Instructions for Candidates: | No. of questions : 5 |
|---|---|
| Answer four (4) questions including question 01 | No. of pages : 4 |
| | Time : 2 hours |

## Question 1

I. **Select the most appropriate answer.**

1. Who started Free Software Foundation (FSF)?

    a) Linus Torvalds

    b) Richard Stallman

    c) Eric.S.Raymond

    d) MIT

2. An example of Closed-source freeware is

    a) Mysql

    b) Microsoft office package

    c) Skype

    d) Ubuntu

3. Default Linux shell is ...........................

    a) nash

    b) rash

    c) bash

    d) iash

4. What is the bash shell key combination for ending a running program and return to the prompt?

    a) Ctrl + a

    b) Ctrl + b

    c) Ctrl + c

    d) Ctrl + d

5. What is the Linux command to print your working directory?

    a) pwd

    b) pcd

    c) wd

    d) ls

6. Which command is used to change permission of files and directories?

    a) mv

    b) chgrp

    c) chmod

    d) set

7. After typing the command **mkdir --p Data**, what will happen?

   a) Created a directory Data

   b) Created and Printed a directory Data

   c) Created a parent directory Data

   d) Created a private directory Data

8. Which symbol represents the users home directory ?

   a) /

   b) .

   c) ..

   d) ~

9. Which of the flowing statement is correct regarding Samba server in FOSS development?

   a) Samba is a suite of utilities that allows your Linux box to share files and other resources

   b) It may allow all in home to have their own logins on all the home windows boxes while having their files on the Linux box appear to be located on a new windows drive

   c) Smb.conf file is the main configuration file of Samba

   d) All of the above.

10. What is Postfix?

   a) Free and open-source mail transfer agent (MTA) that routes and delivers electronic mail.

   b) Postfix is suitable if you have no need to check your email in multiple locations.

   c) Postfix is the most recent version of a standard protocol for receiving e-mail.

   d) None of the above.                                                     **(2x10=20 marks)**

II. **State whether the following sentences are true or false**

   a) In Linux, *tar* command is used to create compressed archives that can easily be moved around, from disk to disk, or computer to computer. (................)

   b) Nonreciprocal Free licenses allow subsequent users to use, modify and redistribute the code with source code (..............)

   c) The proxy server provides management and control over Internet access. (.............)

   d) Cron is a Unix, Solaris utility that allows tasks to be automatically run in the background at regular intervals by the cron daemon.(.............)

   e) By using :w! <**enter key**> command can quits the vi editor without making any changes in file. (.............)                                        (5 marks)

                                                                              (Total 25 marks)

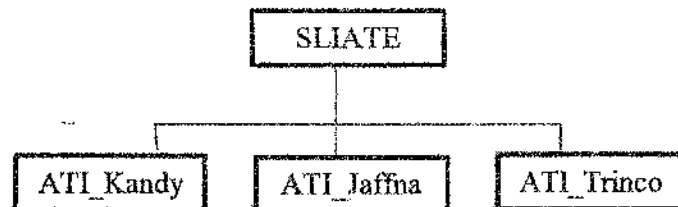**Question 02**

I. Define the term Open Source Software. (2 marks)

II. Write four concepts which are using in FOSS business model (4 marks)

III. Briefly explain the concept of "Dual Licensing". (4 marks)

IV. Briefly explain following terms which are used in the Linux architecture. (6 marks)

    a) Shell        b) Kernel        c) System Calls

V. Name three Shell types in Linux. (3 marks)

VI. Write short notes on following topics. (6 marks)

    a) GNU project        b) Linux Advantages

**(Total 25 marks)**

**Question 03**

I. What is the usage of following two terminal commands in Linux (4 marks)

    a) free        b) top

II. Assumed that you have opened the terminal and now you are in the home directory

```
              ┌──────────┐
              │  SLIATE  │
              └────┬─────┘
      ┌────────────┼────────────┐
┌──────────┐ ┌───────────┐ ┌───────────┐
│ ATI_Kandy│ │ ATI_Jaffna│ │ ATI_Trinco│
└──────────┘ └───────────┘ └───────────┘
```

    a) Write down Linux commands to create the above directory structure. (5 marks)

    b) Write down Linux commands to view the contents of ATI_Kandy folder. (2 marks)

    c) What is the output, if you type "pwd" inside ATI_Kandy folder (2 marks)

    d) Write down Linux commands to delete the ATI-Kandy folder. (2 marks)

    e) Assumed you have word document called "*studentinfor.doc*" inside ATI-Jaffna directory. Write down Linux commands to copy it to the ATI-Trinco directory. (4 marks)

III. Assumed that you have opened the terminal and now you are in your home directory. In your home directory there is a text file named as *atidata.txt*. (6 marks)

    a) Write a command to find the word *computer* in *atidata.txt* file using **grep**.

    b) How to open *myInfo.txt* file in append mode using cat command.

    c) Rename the file *atidata.txt* as *atiinformaton.txt* using command.

**(Total 25 marks)**

**Question 04**

I.   What is the purpose of text editors in Linux? (2 marks)

II.  List any four advantages of vi editor in Linux (4 marks)

III. vi editor in Linux has three modes namely Command mode, Input mode and Last-line mode. How will you get to them by pressing keys (3 marks)

IV.  What is the purpose of process management in Linux Operating System? (4 marks)

V.   Identify a,b,c,d in flowing figure (4 marks)
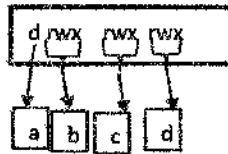


VI.  Write down the output of following permission commands for *atiinfro.txt* file (8 marks)

(Hint – The initial state of the file is atiinfor.txt – 0640)

a)  Chmod 766 atiinfor.txt            c)  Chmod u-w atiinfor.txt

b)  Chmod o+r atiinfor.txt            d)  Chmod a+rwx atiinfor.txt

**(Total 25 marks)**

**Question 05**

I.   What are the functionalities of samba server? (4 marks)

II.  Write two reasons to implement a proxy server in your computer network. (4 marks)

III. Following segment displays ACCESS_CONTROL section of the squid.conf

```
#
# Add this to the bottom of the ACL section of squid.conf
#
acl home_network src 192.168.1.0/24
acl business_hours time M T W H F 9:00-17:00
acl RestrictedHost src 192.168.1.23
#
# Add this at the top of the http_access section of squid.conf
#
http_access deny RestrictedHost
http_access allow home_network business_hours
```

Briefly explain the use of above configurations in squid.conf file in Proxy server. (4 marks)

IV.  Briefly explain the following mail server services (4 marks)

a)  Postfix                          b)  devcot

V.   What is a web server? Name two open source web servers. (4 marks)

VI.  Briefly explain the functionality of DHCP server (5 marks)

**(Total 25 marks)**