

Marking scheme
Higher National Diploma in Information Technology
Second Year, Second Semester Examination – 2019
HNDIT2402 Free and Open Source Systems

No of pages-7

Question 1

1.

1. b
2. a
3. b
4. b
5. c
6. b
7. b
8. d
9. a
10. a

(2 x 10 = 20 marks)

2. **Select the suitable word and filling the blanks**
(DHCP, df, uptime, ctrl+L, cpuinfo)

- i. Show current logging time **uptime**
 - ii. Clear the terminal screen **ctrl+L**
 - iii. Display CPU information **cpuinfo**
 - iv. Show disk usage **df**
 - v. Automatically configure IP addresses of the host computer **DHCP**
- (05 marks)

(Total 25 marks)

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Question 03

(3 marks)

i. Briefly explain "Free and Open Source Software"

FOSS or Free and Open Source Software, is software which has the freedom to share its source code
The freedom to run the program for any purpose
The freedom to study and modify the program (need the source code to be opened)

ii. Write 3 features of Linux operating system

(3 marks)

Multituser
Open source
Inexpensive
Multitasking
Security
Network friendly
(any three answers)

iii. Explain FOSS business model

(4 marks)

To whom?
Companies whose business centered on development of open source software
Why?
To make money providing software that is by definition licensed free of charge
How?
Selling FOSS for low cost
Providing FOSS with proprietary extensions (plugins, add-ons)
Providing free FOSS with charged services (training, support)
Dual licensing
Total free version (individual users)
Another version for money (companies)
Donations (for developers)

iv. Write 3 differences between open and close source software

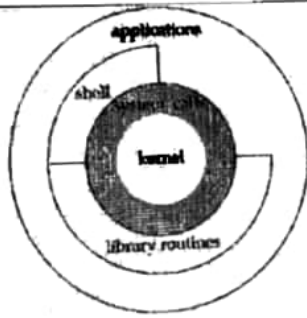
(6 marks)

Open source	Closed source
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Source code is available to view and modify	source code is not released to the public
Highly flexible and free to change the software without restriction	Source code is not shared; therefore no changes can be done
Maintained by online user community	software is usually maintained by a team who produces the product

v. Explain Linux shell and kernel using diagram

(9 marks)

	Shell	kernel
	An interface program which is used to execute commands Interface between user and the kernel Text-based command-line interpreter bash is the default Linux shell	Heart of the operating system Every operation is performed using the kernel When the Kernel receives requests from the Shell, it process the request and gives result

(Total 25

marks)

Question 03

(3 marks)

i. Give three examples for shell

sh - one of the original shells
 bash - standard GNU shell
 csh and tcsh- resembles that of the C programming language. Sometimes asked for by programmers.
 Korn shell, or ksh -used by people with a good Linux background

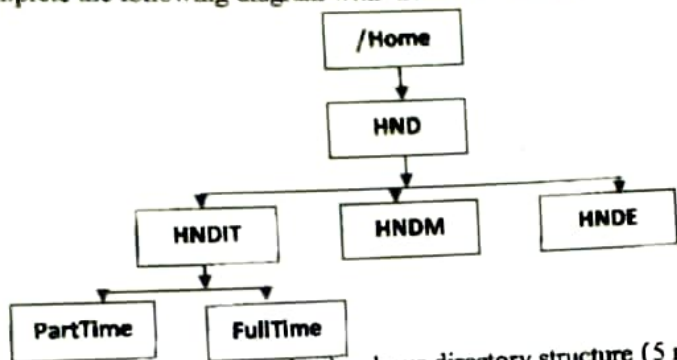
(5 marks)

ii. Briefly explain below file management command

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cd.. -to got to parent directory
mv - move or rename the file
mkdir - make directory
ls - content/directory listing
cp - copy file

iii. Complete the following diagram with Linux commands



a. Using Linux commands make the above directory structure (5 marks)

mkdir HND 1 mark
 cd HND 1 mark
 mkdir HNDIT HNDM HNDE 1 mark
 cd HNDIT 1 mark
 mkdir PartTime FullTime 1 mark

b. Make the file "payment.txt" inside PartTime directory (2 marks)

cd PartTime 1 mark
 touch payment.txt 1 mark *cat >> payment.txt*

c. Make the file "attendance.txt" inside FullTime directory (3 marks)

cd .. 1 mark
 cd FullTime 1 mark
 touch attendance.txt 1 mark *cat >> attendance.txt*

d. Open the file "payment.txt" with vi editor and insert payment details and save the file (5 marks)

cd .. ½ Mark
 cd PartTime ½ mark
 Vi payment.txt 1 mark
 Enter i or I to change insert mode 1 mark
 Type your name
 Press Esc 1 mark

Type : wq and press enter key 1 mark

- e. Copy payment.txt file into FullTime directory (2 marks)

cp PartTime/ payment.txt FullTime 2 marks

(Total 25 marks)

Question 04

- i. Briefly explain "Linux is better than Windows operating system " (2 marks)

Any two

Better security
Protected from virus attack
Much more stable than any other OS
Flexible desktop
Free and open source

- ii. Briefly explain the attributes used in the file and directory permissions? (4 marks)

We can list out using "ls -l" displays the items permissions. 1 mark

☐ Each item has 3 sections of permissions.

o User permissions: Owner

o Group permissions: Associated Group

o Other permissions: Everyone else on the system

3 marks

OR

1 mark

Read Write Execute
rwxrwxrwx 3 marks
User Group Other
Mode

- iii. Write Linux shell command to display user related details (4 marks)

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How to display current users' information?	Who 2 marks
How to display all user logged in?	w 2 marks <i>Users</i>

iv. What is the purpose of process management in Linux Operating System? (5 marks)

A process is an instance of a program running in Linux, some time you may need to stop in directly, process management is a case in point. Linux creates a process whenever a program is touched either by you or by Linux this process is a container of information about how that program is running and what's happening.

iv. Write the command display the current file permission **student.txt** as follows. (2 marks)

- rw-rw-r--

ls -l

Write the file permission commands to complete following tasks?

(2 marks)

a) Add the execute permission for group

Chmod g+x student.txt

(2 marks)

b) Add the write permission for guests.

Chmod o+w student.txt

(2 marks)

c) Remove write permission from all.

Chmod a-w student.txt

or

chmod u-w,g-w,o-w student.txt

(2 marks)

d) Change into new owner Gihan

Chown Gihan student.txt

(Total 25 marks)

Question 05

(2 marks)

i. Write two file compression commands

tar

gzip

(4 marks)

ii. Write four features of proxy server

Load-balancing

Authentication

Decryption or caching

Open proxies and reverse proxies

Monitoring and filtering

Improving performance

Translation

(4 marks)

iii. Write the four important features of SAMBA server

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

Server directory trees and printers to Linux, UNIX and Windows clients

Assist in network browsing

Authenticate Windows domain logins

(any 04 answers 04 marks)

iv. Briefly explain five functionality of DHCP

(5 marks)

v. Write down the commands complete the following activities

(10 marks)

a. Install squid server

yum install squid

b. Open squid configuration file

VI/etc/squid/squid.conf

c. Block the www.youtube.com

acl yt dstdomain youtube.com

d. Start the squid server

service squid start

e. Check the status of squid server

Service squid status

(Total 25 marks)