B2.3-R4: BASICS OF OS, UNIX AND SHELL PROGRAMMING

NOTE:

1. There are **TWO PARTS** in this Module/Paper. **PART ONE** contains **FOUR** questions and **PART TWO** contains **FIVE** questions.

2. **PART ONE** is to be answered in the **OMR ANSWER SHEET** only, supplied with the question paper, as per the instructions contained therein. **PART ONE** is **NOT** to be answered in the answer book.

3. Maximum time allotted for **PART ONE** is **ONE HOUR**. Answer book for **PART TWO** will be supplied at the table when the answer sheet for **PART ONE** is returned. However, candidates, who complete **PART ONE** earlier than one hour, can collect the answer book for **PART TWO** immediately after handing over the answer sheet for **PART ONE**.

TOTAL TIME: 3 HOURS **TOTAL MARKS: 100**

(PART ONE – 40; PART TWO – 60)

PART ONE
(Answer all the questions)

1. Each question below gives a multiple choice of answers. Choose the most appropriate one and enter in the "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10)

1.1 Which Linux command is used to assign privileges over a particular file to a designated user?
A) chroot
B) chown
C) assign
D) chgrp

1.2 According to the Linux filesystem hierarchy standard, which of the following directories would be an appropriate location for a user to install a shared application to?
A) /sbin
B) /dev/user/bin
C) /usr/local/bin
D) /etc/bin

1.3 Which command line can be used to restart a running Linux system immediately?
A) restart --delay=0
B) reboot –w
C) halt –p
D) shutdown -r now

1.4 Which Linux command can be used to create a new user account?
A) newuser
B) useradd
C) mkuser
D) usercfg

1.5 Which of the following Linux commands can be used to create backups of filesystems and directories?
A) backup
B) gzip
C) tar
D) archive

1.6 Which Linux command can be used to determine the available space on local hard-disk partitions?
A) free
B) df
C) du
D) fdisk

1.7 Which Linux command can be used to repair improperly shutdown, or otherwise potentially corrupt partitions?
A) chkdsk
B) scandisk
C) fsck
D) fdisk

1.8 Which of the following Linux utilities does NOT include the capability to list the process IDs of running applications?
A) jobs
B) ps
C) nice
D) top

1.9 Which of the following commands can be used to assure that a file 'mfile' exists?
A) cp mfile /dev/null
B) touch mfile
C) create mfile
D) mkfile mfile

1.10 Which of the following command can you execute to count the number of lines in a file?
A) lc
B) wc –l
C) cl
D) count

2. Each statement below is either TRUE or FALSE. Choose the most appropriate one and ENTER in the "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10)

2.1 Every user can access his / her own terminal as /dev/tty.

2.2 The shell is a process that runs when a user logs out.

2.3 Pipes connect the standard input of first command with standard output of second command.

2.4 A wild card that is escaped with a \ to be treated literally.

2.5 The pr command formats input to print headings and page numbers.

2.6 tr translates characters using two expressions and accepts both standard and file inputs.

2.7 In X Windows xhosts controls access to the server.

2.8 telnet is used to run commands on a remote machine.

2.9 A file can have a single link in Linux.

2.10 chown command is used to transfer ownership of a file.

3. Match words and phrases in column X with the closest related meaning/ word(s)/phrase(s) in column Y. Enter your selection in the "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10)

X		Y	
3.1	cat	**A.**	Create a compressed archive from directory structure
3.2	cmp	**B.**	Creates a process
3.3	zip –r	**C.**	Case insensitive searching for a pattern in a file
3.4	lp –n	**D.**	Used for substitution
3.5	fork	**E.**	Displays one or more files and also creates a file
3.6	at	**F.**	Basic integer computing
3.7	grep –i	**G.**	Schedules a job for one time execution
3.8	expr	**H.**	Displays where the first difference between two files is encountered
3.9	wall	**I.**	Alters file permission
3.10	chmod	**J.**	Prints multiple copies of a file
		K.	Link n files
		L.	Sends message to all users
		M.	Alters file ownership

4. Each statement below has a blank space to fit one of the word(s) or phrase(s) in the list below. Enter your choice in the "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10)

A.	-install	**B.**	sort	**C.**	sort -n
D.	Encrypted	**E.**	logs	**F.**	zombie
G.	-i	**H.**	output	**I.**	-9
J.	display	**K.**	blocked	**L.**	/etc/passwd
M.	grep				

4.1 The file /etc/passwd stores user password in _____ form.

4.2 The 'var' directory in Linux file system is used to store _____.

4.3 The option used to install a given RPM file is _____.

4.4 In a Linux system, if the process has been terminated but, for some reason, still must have its task structure in the process table is in the _____ state.

4.5 A process that cannot execute until some event occurs is said to be in the _____ state.

4.6 The pattern matching editor is called _____.

4.7 The command kill _____ kills the process instantly without any chance.

4.8 The command used to sort in numeric order is _____.

4.9 In X Windows your computer terminal is called a _____ server and applications are called clients.

4.10 When a user changes its password then the change affects the file _____.

PART TWO

(Answer any **FOUR** questions)

5.

a) Explain the difference between Open Source and Free Software. Is Linux an open source operating system, explain.

b) What is the purpose of a shell? What are different types of shells?

c) Differentiate between hard link and soft link. Can they be used to link files and directories both?

(5+5+5)

6.

a) What is an inode? Explain different fields in an inode.

b) What is a socket? How socket binds with each other?

c) Explain five operations that we can use with files.

(5+5+5)

7.

a) Can we use symbolic codes to totally reset the permission for user, group and other? Elaborate your answer.

b) What is piping? How piping operator works? Explain with example.

c) How I/O and error redirection can be done in Linux? Explain.

(5+5+5)

8.

a) Write a shell script to generate Fibonacci series upto ten numbers. [Note: Fibonacci series: 0, 1, 1, 2, 3, 5, …]

b) Identify and explain six different states of a job.

c) What are the startup and shutdown files for each shell?

(5+5+5)

9.

a) When do we use each of the following utilities, explain with example.

   i) mail
   ii) write
   iii) talk
   iv) telnet
   v) ftp

b) What are filters? Explain any five filter utilities.

([2x5]+5)