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 **TEAR-OFF ANSWER SHEET** only, attached to 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 "tear-off" answer sheet attached to the question paper, following instructions therein.** **(1x10)**

1.1   Which program searches given input for a pattern?
A)   sort
B)   grep
C)   search
D)   cat

1.2   The `pwd` command
A)   Changes your password
B)   Prints the current directory
C)   Prints a file
D)   None of the above

1.3   Command to display output of ls - l one screen at a time
A)   `ls – l | more`
B)   `ls – l | cat`
C)   `ls – l | grep`
D)   `ls – l | scr`

1.4   How would you rename a file called File1 to File2?
A)   mv File1 File2
B)   cp File1 File2
C)   reName File1 File2
D)   None of the above

1.5   Runlevel reserved for "reboot" only
A)   0
B)   1
C)   4
D)   6

1.6   Which command displays the contents of a file to **stdout**?
A)   echo
B)   print
C)   display
D)   cat

1.7   Which argument to the command **ls** will display all the files in a directory, including hidden files?
A)   - h
B)   - l
C)   - a
D)   - s

1.8   Which symbol represents a pipe?
A)   %
B)   !
C)   &
D) |

1.9   What command is used to view the contents of the $path variable?
A)   print $path
B)   set $path
C)   echo $path
D)   show $path

1.10   Which of the following is true?
A)   UNIX is widely used in mail systems.
B)   UNIX is case sensitive.
C)   UNIX has a graphical user interface.
D)   All of the above.

2. **Each statement below is either TRUE or FALSE. Choose the most appropriate one and ENTER in the "tear-off" sheet attached to the question paper, following instructions therein.** **(1x10)**

2.1   An operating system can be viewed as "resource allocator" to control various I/O devices and user programs.

2.2   Links can be used to assign more than one name to a file.

2.3   The X client maintains exclusive control of the display and services requests from the server.

2.4   Files and directories are organized into a single-rooted inverted tree structure.

2.5   Each shell and system process do not have a current working directory.

2.6   More than one file may be copied at a time if the destination is a directory.

2.7   Four symbols are used to display permissions

2.8   Hard links can span across File Systems..

2.9   `find` command can be used to get information about files and directories.

2.10   `cpio` cannot copy directory subtree.

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 "tear-off" answer sheet attached to the question paper, following instructions therein.** **(1x10)**

X		Y	
3.1	GNOME	**A.**	To create a new process
3.2	nice	**B.**	Monitor system performance
3.3	su	**C.**	Ownership is changed
3.4	fork()	**D.**	Create a backup and recover policy
3.5	chown	**E.**	Creates new shell as root
3.6	Absolute pathname	**F.**	To bias the existing priority of a process
3.7	Environment	**G.**	Stores a history of commands you've entered, which can be used to repeat commands
3.8	bash	**H.**	Performs search/replace operations on a stream of text
3.9	cron	**I.**	Complete "road map" to file location
3.10	sed	**J.**	Variables are inherited by child shells
		K.	Read data from an open file
		L.	Service schedule events to take place at certain date and time
		M.	The default desktop environment

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 "tear-off" answer sheet attached to the question paper, following instructions therein.** **(1x10)**

A.	Open Source	**B.**	ugo+r	**C.**	df
D.	Pipes	**E.**	inode	**F.**	Netstat
G.	process	**H.**	tr	**I.**	shell scripts
J.	nice	**K.**	Symbolic link	**L.**	find
M.	vim				

4.1   _____ is a Network Diagnostic Tool.

4.2   _____ is a file that only contains the name of another file.

4.3   The ability to modify and create derived works called _____.

4.4   _____ grants read access to all.

4.5   _____ are useful for creating simple applications.

4.6   _____ can connect commands.

4.7   _____ converts characters in one set to corresponding characters in another set.

4.8   A _____ is a set of instructions in memory.

4.9   The computer's reference for a file is the _____ number.

4.10   _____ reports disk space usage.

PART TWO
(Answer any **FOUR** questions)

5.
a) Discuss the origin of Linux.
b) Explain the nature of open source software.
c) Describe the structure of an inode.

(4+5+6)

6.
a) Explain how do you change File Access Permissions?
b) What are the Unix system calls for I/O?
c) What are links and symbolic links in UNIX file system?

(5+5+5)

7.
a) What is a shell?
b) List some Network Diagnostic Tools. Explain any one in brief.
c) Write shell script to print a given number in reverse order, for example if the number is 123 then it must be printed as 321.

(4+4+7)

8.
a) What are the various IDs associated with a process?
b) What are the three main purposes of an operating system? What is the main advantage of multiprogramming?
c) Give an overview of the X Window System Architecture.

(4+5+6)

9.
a) List the system calls used for process management.
b) Discuss the role of a System Administrator.
c) Give a brief overview of the runlevels used by Linux and Unix operating systems.

(5+5+5)