B2.3-R3: 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 of the following special keys returns the vi editor back to the command mode?
A) Enter
B) Esc
C) Shift
D) Ctrl-Tab

1.2 Which of the following is not a valid way to copy a file in UNIX?
A) Use the cp command from the command line
B) Use the CDE File Manager
C) Use the Ctrl – Select then drag drop technique with the file manager
D) Use the copy command

1.3 Which UNIX partition contains standard UNIX system files and mount points?
A) Swap
B) Root
C) Usr
D) Home

1.4 Which command would display a listing of all files in the current directory owned by John?
A) grep john./*
B) ls john
C) ls-al | grep john
D) grep john | ls-al

1.5 Which of the following is not a characteristic of a shell program?
A) Execute faster than a compiled C program.
B) Execute one line at a time.
C) Interpreted rather than compiled.
D) Execute more slowly than a compiled C program.

1.6   Which utility should be used when you need to verify where a connection has failed or isolate a slow link?
A)   telnet
B)   ftp
C)   trace route
D)   ping

1.7   Which of the following is not a Linux GUI?
A)   Xfree86
B)   KDE
C)   Motif
D)   CDE

1.8   GNU/Linux is compatible with which Operating System?
A)   Windows
B)   Unix
C)   Both A) and B) above
D)   None of the above

1.9   With what command can you see what folder you are in?
A)   whereami
B)   place
C)   pwd
D)   map

1.10. What does the command `ls` do?
A)   Shows a calendar
B)   Display of files and folders, present in the folder where you are
C)   Opening a file
D)   Display the contents of a file

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 In vi, :wq is used if we want to discard all the changes since the last write.
2.2 Every process created on a unix system has a unique PID.
2.3 Elective is a type of variable used in shell scripts.
2.4 Copy command is used to transfer files in an FTP session.
2.5 Unix deals with super user the same way other multiuser system do.
2.6 Runlevel 0 is reserved for the "shutdown" phase.
2.7 dump is designed for simplified backups of an entire filesystem.
2.8 password command is not used to change an account's password.
2.9 It is possible to pass shell variable settings into an awk program.
2.10 A named pipe is a special file that is used to transfer data between unrelated processes.

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	tcsh	**A.**	Displays users' disk usage and limits
3.2	dd	**B.**	Run a program with modified scheduling priority
3.3	Runlevel 0	**C.**	Commonly used text editor
3.4	Daemon	**D.**	Utility which compares two files of any type and writes the results to the standard output
3.5	Quota	**E.**	Update a user's authentication tokens(s)
3.6	emacs	**F.**	Shows disk space available on the system
3.7	nice	**G.**	Graphical user interface
3.8	&	**H.**	Reserved for the "shutdown" phase
3.9	cmp	**I.**	pid of current process
3.10	passwd	**J.**	Displays list of all environment variables
		K.	Very low-level command for copying data
		L.	Shows line number
		M.	Program which runs in the background
		N.	Run command in background
		O.	Improved variant of the C shell

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.	df	**F.**	Java	**K.**	pine
B.	simple calculator	**G.**	Run level	**L.**	HTTP Client
C.	graphical user interface	**H.**	Process status	**M.**	interface
D.	AWK	**I.**	COBOL	**N.**	multiple files
E.	UNIX Shell	**J.**	C++	**O.**	telnet (host)

4.1   _____ connect to another Internet site.

4.2   _____ an easy to use mail system.

4.3   _____ shows disk space available on the system.

4.4   tar combines _____ into one or vice-versa.

4.5   bc a _____.

4.6   X Window System a _____.

4.7   _____ is a simple and elegant pattern scanning and processing language.

4.8   Shell is an _____ between the user and the kernel.

4.9   Automatic backups is not a feature of _____.

4.10   _____ is a write once, run anywhere language that use 'virtual machine' to translate instructions.

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

5.
a) List the three modes of operation in vi editor.
b) Explain the functionality of df, du and egrep commands with examples.
c) What are the different types of unix processes?
d) What is the difference between a compiled language and an interpreted language?

(3+5+4+3)

6.
a) What is domain name service? Give an example of how this service is used.
b) Explain the functional difference between the X Windows Server and the X Windows Client.
c) What is Password Shadowing and Password Aging?

(6+3+6)

7.
a) Write a shell script to compute factorial of a positive integer?
b) Write a awk program to Print the length of the longest input line.

(9+6)

8.
a) What is a inode? Explain its structure in brief.
b) What does fork() do?
c) What is crontab command used for? Give example.

(6+3+6)

9. Write short notes on:
a) Built-in Unix Backup Software
b) Various Run levels in Unix
c) Multiprogramming, Multi-user and Multitasking

(5+5+5)