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 Who developed the Linux?
A) Charles Babbage
B) Linus Torvalds
C) Alan Turing
D) None of the above

1.2 What terminology is not used in the Linux?
A) Shell
B) Process
C) File
D) Folder

1.3 What is the function of the Shell?
A) Communication media between user and Linux OS
B) Communication media between user and Hardware
C) Communication media between user and Application
D) None of the above

1.4 What is the System Call in Linux?
A) Function
B) Predefined function
C) Properties
D) None of the above

1.5 How many types of the shell are there in Linux?
A) One
B) Two
C) Three
D) Four

1.6 What is the use of ps command in Linux?
A) Generates a list of processes and their attributes
B) Generates a list of Action and their attributes
C) Generate a list of users and their attributes
D) None of the above

1.7 Why we use the kill command?
A) Stop process
B) Terminate the process
C) Wait the process
D) None of the above

1.8 Which facilities are provided by the kernel?
A) Memory management
B) Process management
C) Inter process communication (IPC)
D) All of the above

1.9 What is the task not done by system administrator?
A) Starting and stopping Linux
B) Maintaining the file system
C) Maintaining the user a/cs
D) Compilation of program

1.10 What does the grep command do?
A) Searches files for a pattern
B) Merges lines of files
C) Specify the time of execution of file
D) None 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 Kernel is not responsible for Process management.
2.2 It is possible to create new a file system in UNIX.
2.3 UNIX commands are case-sensitive, but most are lowercase.
2.4 chmod changes the permissions of your home directory.
2.5 man command is used to manually allocate network resources to a process.
2.6 The CPU is allowed to execute other programs while the DMA controller is transferring data.
2.7 Linux computer can be made a router.
2.8 pwd displays your current directory.
2.9 du reports disk space used by a file or directory.
2.10 Daemon is a computer program under the direct control of a user.

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	fork	**A.**	Commonly used to monitor network traffic
3.2	umask	**B.**	Loads the program into main memory from storage device
3.3	tail	**C.**	Used to create a new process
3.4	who	**D.**	Command is used for changing priority of the jobs
3.5	tcpdump	**E.**	Command is used to set file permission on newly created files by default
3.6	loader	**F.**	The smallest unit of execution
3.7	linker	**G.**	List the contents of the directory
3.8	nice	**H.**	By default displays last 10 lines of the file
3.9	ls	**I.**	On a directory to prevent users from removing files
3.10	thread	**J.**	List all currently logged in users
		K.	Can perform editing functions in the stream
		L.	Links and combines objects generated by a compiler into a single executable
		M.	A variable which determines where the shell is looking for commands to execute

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.	NFS	**B.**	X-Client	**C.**	i-node
D.	crontab	**E.**	Shell	**F.**	nslookup
G.	Process	**H.**	wait	**I.**	DMA
J.	pipe	**K.**	Compiler	**L.**	find
M.	vi				

4.1 _____ is a program the user uses for executing the commands.

4.2 A _____ is a chain of processes so that output of one process is fed an input (to another).

4.3 _____ is used to find details related to a Domain name server.

4.4 _____ file system used for sharing of files over a network.

4.5 _____ is used for scheduling of the commands.

4.6 A _____ is a program that converts the programming language code to a machine readable format.

4.7 _____ is used for high-speed I/O devices in order to avoid increasing the CPU´s execution load.

4.8 _____ include application programs and window managers.

4.9 The data structure used to maintain file identification is _____.

4.10 _____ is a text editor.

PART TWO

(Answer any **FOUR** questions)

5.

a) What is Kernel? Explain the task it performs**.**

b) What is Bash? How Bash executes its startup files?

c) What is the difference between home directory and working directory? How do you create and remove a directory?

(4+6+5)

6.

a) What are the various commands used for taking backup?

b) What are Pipes? Explain use of pipes.

c) When we look at a list of files and directories, the names are followed by something like `-rw-rw-r--` What does this mean?

d) What is Linux and why is it so popular?

e) How can you kill a program that is locked up?

(3x5)

7.

a) Write shell script to calculate factorial of a given number, for eg. If no is 4 its factorial is 4X3X2X1=24.

b) How is the `grep` command used to search files and words?

c) What are most notable features of Vim? Explain any one?

d) Give usage of `man` command in Linux with example.

(6+3+3+3)

8.

a) What is the root account in Linux and how does it differ from a normal user account?

b) What does `nslookup` do? Explain its two modes.

c) How to start a X Client on another display?

d) How `sed` utility works? Give example.

(3+4+4+4)

9.

a) What is NFS? What is its purpose?

b) What are the process states in Linux?

c) Explain Some Network-Monitoring Tools in Linux.

(5+5+5)