

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 The hidden files in Unix
 - A) have special status bit associated with the file descriptor
 - B) have names starting with a dot
 - C) can be accessed only by the operating system kernel
 - D) None of the above
 - 1.2 Which one of the following is use of whatis command?
 - A) It shows short description of command
 - B) It shows user logged in
 - C) It shows file type
 - D) None of the above
 - 1.3 In vi editor, meaning of :1,20w xfile is
 - A) Save words 1 through 20 to a file called xfile
 - B) Save lines 1 through 20 to a file called xfile
 - C) Import lines 1 through 20 to a file called xfile
 - D) None of the above
 - 1.4 In Unix, file pathname originates from
 - A) user's home directory
 - B) user's current directory
 - C) root directory
 - D) None of the above
 - 1.5 Computer software that is distributed under a licensing arrangement and which allows the computer code to be shared, viewed and modified by other users and organizations is known as
 - A) Reusable
 - B) Freeware
 - C) Open Source
 - D) None of the above

- 1.6 Which file contains the startup instructions for a user's account?
- A) .startup
 - B) .login
 - C) .running_config
 - D) .start
- 1.7 In Unix, mounting a file system means
- A) Copying all the files from one file system to another
 - B) Moving all the files from one file system to another
 - C) Loading a file system from backup medium like tape
 - D) Providing a link to the file system to be mounted so that it appears as a local subdirectory.
- 1.8 Which of the following is used to switch from virtual text console to graphical environment?
- A) <shift><ctrl>g
 - B) <ctrl>F1
 - C) <ctrl><Alt>F7
 - D) <ctrl>F7
- 1.9 Which of the following controls the way users can interact through the xwindows?
- A) Window manager
 - B) Login prompt
 - C) X control
 - D) None of the above
- 1.10 Which filter will replace all occurrences of the pattern "old" to "new" in a file?
- A) trim
 - B) sed
 - C) find
 - D) replace

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 tr command is used to truncate lines from a file.
- 2.2 System calls provide the interface between a process and the operating system.
- 2.3 The wc -c command will give number of words in a file.
- 2.4 The output of one command can be directly fed into the input of another command using a “&” operator.
- 2.5 X Client and X Server software can run on hardware from different vendors.
- 2.6 The command “cut” splits a file content vertically.
- 2.7 bg command brings a job from background to foreground.
- 2.8 /dev directory contains development directories and files.
- 2.9 nice command alters access permission associated to file or directory.
- 2.10 User’s name and groupid are stored in /etc/shadow directory

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	System wide startup script	A.	mv
3.2	Command to change password	B.	ctime
3.3	The command which shows location of executable file from PATH environment	C.	ls -la
3.4	Scheduling a process	D.	xclipboard
3.5	Format and display the on-line manual page	E.	/etc/profile
3.6	Command to rename a file	F.	scm
3.7	Command to test network connectivity	G.	cron
3.8	Option of find command to search a file whose metadata has changed	H.	which
3.9	xWindow with six buttons at top	I.	rename
3.10	A command used to get hidden files	J.	ping
		K.	passwd
		L.	man
		M.	/bin/loginscript

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.	chown	B.	/dev	C.	df
D.	DNS	E.	owner	F.	chkconfig
G.	xinit	H.	global	I.	SET
J.	PATH	K.	authentication	L.	Login
M.	export				

- 4.1 If a file is SUID, it will run with the privileges of the file's _____, instead of the privileges of the person running the program.
- 4.2 The _____ program is used to start the X Window System server.
- 4.3 The _____ command gives space usage per file system.
- 4.4 _____ resolves hostname to IP address.
- 4.5 _____ command is used to change ownership of file.
- 4.6 Authorized user with correct password is checked by _____ process.
- 4.7 _____ command is used for change of service in Linux.
- 4.8 The device information can be obtained from the _____ directory.
- 4.9 _____ is an environment variable.
- 4.10 The scope of a shell variable can be made global to the subshells by the _____ command.

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

- 5.**
- a) What are the seven fundamental file types of Linux? How to identify file type of any file in Linux?
 - b) What are the states of Linux processes?
 - c) What is background process? Explain with example
- (7+6+2)**
- 6.**
- a) What are the fields of output of “ls -l” command? What is the meaning of each field of the output?
 - b) What are differences between hard link and soft link? By taking suitable explain how to create hard link and soft link.
 - c) What are the advantages of cpio over tar?
- (6+5+4)**
- 7.**
- a) Write a shell script to find the Maximum, Minimum, Average and Sum of numbers from the data passed by command line argument. Assume the data.
 - b) vi is text editor in linux. In which mode of vi, search and replace facility is possible? By taking suitable example explain various options of search and replace operation in vi editor.
 - c) What are environment variable in UNIX? Explain any three of them. How do you change their values?
- (5+5+5)**
- 8.**
- a) What are the device types of Unix Devices? Give example of each.
 - b) What are the main functions performed by Unix System Administrator?
 - c) Explain fields of the */etc/passwd* file.
- (3+4+8)**
- 9.**
- a) What is the role of window manager in Unix GUI?
 - b) Write a shell script to calculate the factorial of given number. (Number should be between 1 and 25). Note: Factorial of a number is the product of all positive integers less than or equal to that number. For example, $5! = 5 \times 4 \times 3 \times 2 \times 1 = 120$.
 - c) Explain the following commands:
 - i) who
 - ii) pwd
 - iii) man
 - iv) mkdir -p g1/g2/g3/g4
 - v) rm -r *
- (5+5+[1x5])**