

## A8-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. (1 x 10)**
  - 1.1 In which of the following case commnd2 does not execute until commnd1 has finished?
    - A) commnd1 | commnd2
    - B) commnd2 | commnd1
    - C) commnd1 & commnd2
    - D) commnd2 & commnd1
  - 1.2 Which one of the following commands is used to show hidden files?
    - A) ls -l
    - B) ls -lh
    - C) ls -la
    - D) ls -lhf
  - 1.3 In UNIX “echo” is
    - A) a SHELL variable
    - B) an external command
    - C) one of the many shells
    - D) an internal command
  - 1.4 In vi 5w takes the cursor
    - A) 5 words backward to the beginning of the word
    - B) 5 words forward to the beginning of the word
    - C) 5 words to the end of word
    - D) none of the above
  - 1.5 The command “file test.txt” reports
    - A) the date of creation of test.txt
    - B) the date of last modification of test.txt

- C) the type of the file
- D) all of the above

- 1.6 State of a process changes from “run” to “blocked” when:
- A) Time slice expires
  - B) Waiting for disk read occurs
  - C) Waiting for user response ends
  - D) All of the above
- 1.7 “zip” is used for
- A) Compression and archiving
  - B) Archiving only
  - C) Compression only
  - D) None of the above
- 1.8 UNIX allows the use of more than one command in one line by specifying the following symbol among the commands:
- A) :
  - B) ;
  - C) |
  - D) >
- 1.9 To copy an entire directory structure, we need
- A) `cp -s olddir newdir`
  - B) `cp -d olddir newdir`
  - C) `cp -o olddir newdir`
  - D) `cp -r olddir newdir`
- 1.10 In “vi” to replace a single character with another character we use
- A) `c & C`
  - B) `a & A`
  - C) `r & R`
  - D) `s & S`

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. (1 x 10)

- 2.1 The command “uname -r” shows the version number of UNIX kernel.
- 2.2 “vi” can be used with multiple file names in command line.
- 2.3 The command “mkdir” can not take multiple arguments.
- 2.4 “awk” is able to handle both integer and real numbers.
- 2.5 One of the valid options that “ls” may have is -z.
- 2.6 “sed” is only an editor.
- 2.7 “grep” does not return any false exit status if it fails to find a match.
- 2.8 Xterm is an X client.
- 2.9 In vi “y5w” yanks five words from cursor position
- 2.10 PATH is a shell variable.

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. (1 x 10)

X		Y	
3.1	System shutdown and reboot	A.	HTTP client
3.2	<i>grep a b c</i>	B.	Ctrl-I
3.3	<i>\$set</i>	C.	Searches for “a” from files b and c
3.4	<i>lseek</i>	D.	Displays process status of system processes
3.5	Web browser	E.	Init run level 3
3.6	line number of current cursor position in vi	F.	Allows random access to file
3.7	<i>tr</i>	G.	Searches for “c” from files a and b
3.8	<i>\$\$</i>	H.	Displays list of all environmental variables
3.9	<i>ps -e</i>	I.	ctrl-g
3.10	s denotes	J.	pid of current process
		K.	Substitution in <i>sed</i>
		L.	pid of current shell
		M.	Translates line
		N.	init run level 6
		O.	Substitution in <i>grep</i>
		P.	Displays process status of all processes
		Q.	HTTP server
		R.	Translates character

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. (1 x 10)

A.	0	B.	1	C.	independent
D.	widgits	E.	gadgits	F.	NF
G.	who -Hu	H.	echo	I.	who -HI
J.	Type	K.	time	L.	ls
M.	NR	N.	touch	O.	read
P.	at	Q.	on	R.	Multiple
S.	dependent	T.	seek	U.	dual

- 4.1 The location of a command file is available by \_\_\_\_\_ command.
- 4.2 \_\_\_\_\_ link/s of a file means one copy but more than one names.
- 4.3 X works with a number of components called \_\_\_\_\_.
- 4.4 In “awk” \_\_\_\_\_ denotes number of fields in current line.
- 4.5 The command \_\_\_\_\_ can change access time of a file
- 4.6 The *fork* call returns \_\_\_\_\_ to the child process.
- 4.7 \_\_\_\_\_ prints a detailed list (with column headers) of logged users.
- 4.8 The command \_\_\_\_\_ provides the facility to schedule a job at a specified time.
- 4.9 Processes use \_\_\_\_\_ system call to provide sequential access to files.
- 4.10 HyperText Markup Language (HTML) is browser \_\_\_\_\_.

## PART TWO

(Answer any **FOUR** questions)

5.

- How could you use the “cat” command to behave as an editor?
- What are the characteristics of “df” command? How is it different from the “du” command?
- Which command is used for slicing a file vertically and how?
- What is a named pipe?
- How can groups be deleted using shell command?

**(2+4+4+3+2)**

6.

- What does the command “grep” do? What are the various options? Give the syntax of the command.
- What is meant by command substitution? Explain with the help of an example.
- What is meant by daemon process? Name any two daemon processes.
- What are the file descriptors for Standard Input, Standard Output and Standard Error?

**(6+3+3+3)**

7.

- Write a shell program that prints the multiplication table (upto 20) of a given integer to be provided as command line argument.
- Consider the following table and print the names and payments of those players who have scored at least 06 goals and played more than 04 matches. Use awk programming.

Jersey No	Name	Matches played	Goals scored	Payment received (\$)
03	M. Raina	13	08	850
05	B. Singh	09	04	425
07	A. Routh	15	10	1200
09	R. Alam	12	08	1100
12	T. K. Lall	06	02	250
14	D. Patel	14	11	1150

**(9+6)**

8.

- What is the function of a signal system call?
- Write a shell script which will display “You are welcome to Unix” by using for loop.
- Write a shell script which will re-direct the output of the date command without the time into a file.
- What is the AWK variable that contains the current count of text lines read?
- What are various commands available in Unix for taking backups. Explain three important options each of *TAR* and *CPIO*.

**(4+2+2+2+5)**

9. Write short notes on:

- Booting procedure in UNIX
- Filesystem Superblock
- HyperText Transfer Protocol (HTTP)

**(5+5+5)**

