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. (1 x 10)

1.1 Which one of the following is used to replace a single character in "vi"?
A) O
B) x
C) r
D) N

1.2 Which one of the following lets you know the line number of the current cursor position in "vi" ?
A) <ctrl> g
B) <ctrl> <shift> g
C) <ctrl> <alt> h
D) <ctrl.> h

1.3 The available disk space can be determined under Unix using the command
A) dir
B) df
C) du
D) file

1.4 "init" run-level for system shutdown is:
A) 3
B) 2
C) 1
D) 0

1.5 Which one of the following is a multipurpose tool?
A) grep
B) sed
C) awk
D) editor

1.6 Shell is:
A) Interactive command interpreter
B) Programming language
C) Both A) and B)
D) None of the above

1.7 Which one is an “awk” built-in variable
A) NFS
B) RF
C) OFS
D) None of the above

1.8 Which of the following keys when pressed will generate a shell signal?
A) <shift> <ctrl> a
B) <del>
C) <ctrl> a
D) <ctrl. <del>

1.9 State of a process changes from “run” to “ready” when:
A) Time slice expires
B) Waiting for disk read occurs
C) Waiting for user response occurs
D) All of the above

1.10 A new process executes in Unix by the following command:
A) execute ( )
B) exec ( )
C) exct ( )
D) xcute ( )

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 In "vi" A appends text at the end of line.

2.2 In "vi" cc changes a line.

2.3 A shell is a user interface.

2.4 i-node is a unix command.

2.5 awk is only a command.

2.6 passwd asks for the old password to every category of users.

2.7 init run level 3 is a full multi-user mode.

2.8 init startup file is /etc/initd.

2.9 forkp ( ) is used to create a process in Unix.

2.10URL provides the location of the content searched for

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 ~	**A.** Scheduling process
3.2 File restore	**B.** Encryption of password
3.3 SMTP	**C.** vi
3.4 IP	**D.** HTML
3.5 /etc/shadow	**E.** Toggle case of text in "vi"
3.6 File compression	**F.** grep
3.7 lpsched	**G.** tar
3.8 DNS	**H.** A mail protocol
3.9 cron	**I.** gzip
3.10 Request – reply protocol	**J.** HOME
	K. Domain Name Service
	L. FTP
	M. Client server protocol
	N. WWW
	O. An Internet protocol for transmission of data
	P. Daemon

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.	sleep	**B.**	trap	**C.**	telnet
D.	nice	**E.**	awk	**F.**	head
G.	i-node	**H.**	magic-no	**I.**	getty
J.	startx	**K.**	in-core inode	**L.**	wait
M.	command	**N.**	a.out	**O.**	umask
P.	exec	**Q.**	PCB	**R.**	command

4.1 _____ can be used to change the default access permission of file.

4.2 Most of the function in "vi" operate in _____ mode.

4.3 To start X server manually _____ command is needed.

4.4 _____ can be single-line programs also.

4.5 init spawns a(n) _____ at every serial port connected to a Terminal.

4.6 The shell built-in command _____ setup a sequence of commands to be executed when a signal occurs.

4.7 Remote login to a machine can be done via _____ command.

4.8 The _____ command provides output from the beginning of the concerned file.

4.9 _____ contains the necessary information about a process.

4.10 _____ keeps description of an open file.

PART TWO

(Answer any **FOUR** questions**)**

5.

a) Using "vi" (i) how do you save your work without leaving the editor?
Using "vi" (ii) how will you write selected lines to a file? Mention all options. Give suitable examples.
(iii) What is "yanking"? What does the "!" operator do in "vi"?

b) What do the following commands in "vi" specify? How are they used?
i) map
ii) ?pat
iii) set
iv) ab

(9+6)

6.

a) What are the advantages of having distinct disk partitions?
b) What are the components of every file system?
c) How does kernel access a file?

(5+5+5)

7.

a) How does the "login:" prompt appear?
b) What is the use of sticky bit?
c) How does cron work?
d) What does shell's & operator do?

(4+4+5+2)

8.

a) What types of variables are PATH and HOME? Why are they called variables? In what ways are they used? What is sed?
b) What are the advantages of *cpio* over *tar*?
c) How a client-server environment is created in X?
d) What is xterm?

(6+4+3+2)

9.

a) Write a script to check whether right number of arguments (say, 4) have been entered.
b) Consider the following table:

Employee id	Name	Designation	Department	Date of birth	Salary
2256	A. SINHA	Manager	Sales	01/01/50	12000
2334	R. KUMAR	Sp. Officer	Accounts	02/12/66	15000
2987	B. ROY	Director	Personnel	03/02/58	20000
3214	M. PRAKASH	Manager	R & D	04/06/70	12500

Using awk find the employees who are either born in 1966 or drawing a salary greater than 12000/-.

c) What is grep used for? What are its various options? Give the syntax of the command.
d) What is the purpose of nice command?

(5+4+4+2)