B2.3-R4: BASICS OF OS, UNIX & SHELL PROGRAMMING

NOTE:

IMPORTANT INSTRUCTIONS:

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 **OMR ANSWER SHEET** only, supplied with 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 "OMR" answer sheet supplied with the question paper, following instructions therein.**   **(1x10)**

1.1   The fast and expensive storage device
A)   Register
B)   Electronic disk
C)   Magnetic disk
D)   Optical disk

1.2   Which command is used to change protection mode of files starting with the string emp and ending with 1,2, or 3?
A)   chmod u+x emp[1-3]
B)   chmod 777 emp*
C)   chmod u+r ??? emp
D)   chmod 222 emp?

1.3   The command used to compare the files
A)   comp
B)   cmp
C)   do
D)   ccp

1.4   Which command is used to terminate a process?
A)   shutdown
B)   haltsys
C)   kill
D)   cancel

1.5   Which of the following commands is used to display your working directory?
A)   dir
B)   path
C)   pwd
D)   prompt pg

1.6   Is a interface between the user and the UNIX system
A)   logic
B)   profile
C)   shell
D)   erxc

1.7   Which command is used to count just the number of characters in a file?
A)   wc – 1
B)   wc -c
C)   wc -w
D)   wc -r

1.8   Which command is used to save the standard output in a file, as well as display it on the terminal?
A)   more
B)   grep
C)   tee
D)   cat

1.9   Which of the following files contains information related to password aging?
A)   Shadow
B)   password
C)   profile
D)   none of the above

1.10   Which of the following is not a filter?
A)   cat
B)   grep
C)   wc
D)   none of the above

2.   Each statement below is either TRUE or FALSE. Choose the most appropriate one and ENTER in the "OMR" answer sheet supplied with the question paper, following instructions therein.   (1x10)

2.1   The Kernel is responsible for maintaining all the important abstractions of the operating system.
2.2   An executing instance of a program is called a process.
2.3   Bourne Shell is the earliest and most widely used shell that came with the UNIX system.
2.4   chown is used for to change group of the file.
2.5   To create a new process nice() command is used.
2.6   Only kernel modifies directories, but processes can read directories.
2.7   Links can be used to assign a directory more than one name.
2.8   FIFO are called as 'named pipes'.
2.9   The fork creates a child that is not a duplicate of the parent process.
2.10   On a UNIX system, everything is a file; if something is not a file, it is a process.

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 "OMR" answer sheet supplied with the question paper, following instructions therein.** (1x10)

	X		Y
3.1	Signals	**A.**	Summarizes the disk usage
3.2	X	**B.**	File Transfer Protocol
3.3	Sessions	**C.**	Is a filter
3.4	Multiprocessing	**D.**	Create Linux file systems
3.5	Trap	**E.**	Saves the standard output in a file, as well as display it on the terminal
3.6	mkfs	**F.**	Tightly coupled systems that communicate via shared memory
3.7	TERM	**G.**	Command is used to display the characteristics of a process
3.8	FTP	**H.**	Basis for building some graphical user interfaces
3.9	PS	**I.**	Environment variable
3.10	Tee	**J.**	Software-generated interrupt caused either by an error or a user request
		K.	Collection of one or more process groups
		L.	Software interrupts
		M	Command is used with vi editor to save file and remain in the editing mode

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 "OMR" answer sheet supplied with the question paper, following instructions therein.** (1x10)

A.	Pipe	**B.**	NFS	**C.**	Top
D.	Exit	**E.**	Inode	**F.**	Cron
G.	Console	**H.**	Program	**I.**	Nice
J.	Kernel	**K.**	Daemons	**L.**	Linker
M.	awk				

4.1   A _____ is a source file residing in a disk file.

4.2   To close the current user account _____ command is used.

4.3   The _____ enables file systems physically residing on one computer system to be used by other computers in the network.

4.4   The _____ contains pointers to the data blocks of the file.

4.5   _____ command displays the current amount of memory occupied by the currently executing processes and the details.

4.6   The _____ program allows any user in the system to schedule a program.

4.7   The _____ bundles all the object files together and generates an executable file.

4.8   The _____ is responsible for maintaining all the important abstractions of the operating system, including memory management, process management.

4.9   _____ handle tasks such as responding to incoming network connections, accepting logon requests from terminals and updating log files.

4.10   _____ is one of the most powerful tools in Unix used for processing the rows and columns in a file.

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

5.
a)   How does the inode map to data block of a file?
b)   What are the process states in Unix?
c)   How do you change File Access Permissions? Give example.
d)   Describe shadow password file.

(6+3+3+3)

6.
a)   What is a Daemon? Give example.
b)   What is an advantage of executing a process in the background?
c)   Explain fork() system call.
d)   How are devices represented in UNIX?
e)   How would you kill a process?
f)   What is the use of 'grep' command?

(3 +3+3+2+2+2)

7.
a)   Write a Script to find out the biggest number from the given three given nos.
b)   What is the difference between Command mode & Insert mode in vi?
c)   What do you mean by nice value?
d)   List some differences between multiprogramming and multiprocessing.

(6+3+3+3)

8.
a)   Brief about the directory representation in UNIX.
b)   Describe Bash Shell.
c)   What happens when you execute a program?
d)   What does the following command line produce? Explain each aspect of this line.
        $ (date ; ps -ef | awk '{print $1}' | sort | uniq | wc -l) >> Activity.log

(4+3+4+4)

9.
a)   What is the main goal of the Memory Management?
b)   Explain the Client/Server architecture of X-window system.
c)   What is a Telnet utility? Illustrate with a example.

(5+5+5)