

Sl. No.

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

DURATION : 03 Hours

MAXIMUM MARKS : 100

OMR Sheet No. :

Roll No. :

Answer Sheet No. :

Name of Candidate : _____ ; Signature of Candidate : _____

INSTRUCTIONS FOR CANDIDATES :

- Carefully read the instructions given on Question Paper, OMR Sheet and Answer Sheet.
- Question Paper is in English language. Candidate has to answer in English language only.
- There are **TWO PARTS** in this Module/Paper. **PART ONE** contains **FOUR** questions and **PART TWO** contains **FIVE** questions.
- **PART ONE** is Objective type and carries **40** Marks. **PART TWO** is Subjective type and carries **60** Marks.
- **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 for **PART TWO**.
- 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** to the Invigilator.
- **Candidate cannot leave the examination hall/room without signing on the attendance sheet and handing over his/her Answer Sheet to the invigilator. Failing in doing so, will amount to disqualification of Candidate in this Module/Paper.**
- After receiving the instruction to open the booklet and before answering the questions, the candidate should ensure that the Question Booklet is complete in all respect.

DO NOT OPEN THE QUESTION BOOKLET UNTIL YOU ARE TOLD TO DO SO.

PART ONE

(Answer all the questions; each question carries ONE Mark)

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.
(1 x 10)

1.1 Which command is used for translating characters ?

- (A) trans
- (B) paste
- (C) tr
- (D) sort

1.2 Which command is used to find out the consumption of a specific directory ?

- (A) dv
- (B) mem
- (C) du
- (D) df

1.3 The Octal number to be given along with **chmod** command to make a file readable, writable and executable to the owner, readable and executable to group and others is :

- (A) 000
- (B) 755
- (C) 744
- (D) 555

1.4 Which of the following command is used to update, access and modification times of a file ?

- (A) grep
- (B) wc
- (C) touch
- (D) cat

1.5 In Operating system, each process has its own :

- (A) Address space and global variable
- (B) Open files
- (C) Pending alarms, signals and signal handlers
- (D) All of the options

1.6 Which command does not terminate unless we log out of the system ?

- (A) history
- (B) shell
- (C) echo
- (D) login

1.7 Which of the following macro returns true if the file type is a directory ?

- (A) S_ISDIR
- (B) S_ISREG
- (C) S_ISCHR
- (D) S_ISFIFO

1.8 Which signal is used with kill command to terminate the process when they ignore the SIGTERM signal (15) ?

- (A) SIGTERM (16)
- (B) SIGTERM(0)
- (C) SIGKILL(9)
- (D) -d

1.9 A file contains 1026 bytes. How many bytes of disk space will it consume if size of a disk block is 1024 bytes ?

- (A) 1026
- (B) 1024
- (C) 2048
- (D) 4096

1.10 Which command is used for printing a file ?

- (A) more
- (B) pg
- (C) pr
- (D) lp

2. Each statement below is either TRUE or FALSE. Choose the most appropriate one and enter your choice in the "OMR" answer sheet supplied with the question paper, following instructions therein.

(1 x 10)

- 2.1 The shell waits for the command to complete and normally can't do any work while the command is executing.
- 2.2 Two files can have a same inode number in the same file system.
- 2.3 Every time shift command is used, the left most variable is lost.
- 2.4 fork() is used to create new process.
- 2.5 The loop is a while loop until the loop operates with reverse logic.
- 2.6 base name command is used for change filename extensions.
- 2.7 gzip is used for file compression.
- 2.8 The CPU is allowed to execute other programs while the DMA controller is transferring data.
- 2.9 du reports disk space used by a file or directory.
- 2.10 A time sharing system is always a multiprogramming system.

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 to the question paper, following instructions therein.

(1x 10)

	X		Y
3.1	System restore	A.	Optional booting file
3.2	/opt is reserved for	B.	Passing information from one program process to another
3.3	CMOS	C.	Command is used for changing priority of the jobs
3.4	PIPE	D.	used to create, change and modify time stamps of a file
3.5	who	E.	Installation of add-on application software packages
3.6	nice	F.	list of users who are currently logged into the computer
3.7	umask	G.	complementary metal-oxide semiconductor
3.8	Trap	H.	allows users to restore system settings back to a specific date
3.9	To view the manual page for a topic	I.	Special support from processor is not essential
3.10	lpq	J.	displays the contents of a printer queue
		K.	Type of Interrupt
		L.	Command is used to set file permission on newly created files by default
		M.	man

4. Each statement below has a blank space to fit one of the word(s) or phrase(s) in the list below. Choose the most appropriate option, enter your choice in the "OMR" answer sheet supplied with the question paper, following instructions therein.

(1 x 10)

A	chown	B	umask	C	i-node	D	multi-program environment
E	NFS	F	crontab	G	links	H	nslookup
I	:rew	J	info table	K	init	L	cron
M	at						

- 4.1 We can schedule a job to run at a specified time of day using _____ command.
- 4.2 When multiple filenames are used with vi, we can switch to next file using _____ command.
- 4.3 _____ is used to find details related to a Domain Name Server.
- 4.4 When we can access a file with multiple filenames, it is said that the file has multiple _____.
- 4.5 Both the owner and group owner can be changed by _____ call.
- 4.6 We can change the default permission set for files and directories using _____.
- 4.7 System resources of computer system can be utilized better in _____.
- 4.8 _____ is used for scheduling of the commands.
- 4.9 The data structure used to maintain file identification is _____.
- 4.10 _____ is a parent of all the process.

PART TWO

(Answer any FOUR questions)

5. (a) Explain the different modes of operation of Vi editor. Write down the commands used in each mode.
- (b) Write a shell script to accept student name, registration number and marks of four subjects of 10 students. Find the total mark and grade of each student.
- (c) Explain the format for user defined functions in awk script. Write a function to find the smallest of 10 integers. (5+5+5)
6. (a) Sometimes instructions say that I must "be root." What does this mean? What is the root account and how does it differ from a user account?
- (b) Explain the three main components of a Linux system with a suitable diagram.
- (c) Explain X terminals in detail. (5+5+5)
7. (a) Write a shell script which compares two files given by the user and if both files are same then delete the second one, if not then merge the two files in a new file.
- (b) What is absolute and relative pathnames? Explain with example.
- (c) Define linker in term of UNIX operating system. What is hard link and soft link? (5+5+5)
8. (a) What is mounting? Explain how to mount file systems?
- (b) Define directories. What are the special permissions for executables and directories?
- (c) How to change File Access Permissions? Explain with proper examples. (5+5+5)
9. (a) Describe fork() system call with suitable example.
- (b) What is NFS? What is its purpose?
- (c) What is Bash? How Bash executes its startup files? (5+5+5)

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SPACE FOR ROUGH WORK

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