

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

अवधि: 03 घंटे

DURATION: 03 Hours

अधिकतम अंक: 100

MAXIMUM MARKS: 100

ओएमआर शीट सं.:					
OMR Sheet No.:					

रोल नं.:					
Roll No.:					

उत्तर-पुस्तिका सं.:					
Answer Sheet No.:					

परीक्षार्थी का नाम:

Name of Candidate: _____; Signature of candidate: _____

परीक्षार्थी के हस्ताक्षर:

परीक्षार्थियों के लिए निर्देश:

Instructions for Candidate:

कृपया प्रश्न-पुस्तिका, ओएमआर शीट एवं उत्तर-पुस्तिका में दिये गए निर्देशों को ध्यान पूर्वक पढ़ें।	Carefully read the instructions given on Question Paper, OMR Sheet and Answer Sheet.
प्रश्न-पुस्तिका की भाषा अंग्रेजी है। परीक्षार्थी केवल अंग्रेजी भाषा में ही उत्तर दे सकता है।	Question Paper is in English language. Candidate can answer in English language only.
इस मॉड्यूल/पेपर के दो भाग हैं। भाग एक में चार प्रश्न और भाग दो में पाँच प्रश्न हैं।	There are TWO PARTS in this Module/Paper. PART ONE contains FOUR questions and PART TWO contains FIVE questions.
भाग एक "वैकल्पिक" प्रकार का है जिसके कुल अंक 40 हैं तथा भाग दो, "व्यक्तिपरक" प्रकार है और इसके कुल अंक 60 हैं।	PART ONE is Objective type and carries 40 Marks. PART TWO is subjective type and carries 60 Marks.
भाग एक के उत्तर, इस प्रश्न-पत्र के साथ दी गई ओएमआर उत्तर-पुस्तिका पर, उसमें दिये गए अनुदेशों के अनुसार ही दिये जाने हैं। भाग दो की उत्तर-पुस्तिका में भाग एक के उत्तर नहीं दिये जाने चाहिए।	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 .
भाग एक के लिए अधिकतम समय सीमा एक घण्टा निर्धारित की गई है। भाग दो की उत्तर-पुस्तिका, भाग एक की उत्तर-पुस्तिका जमा कराने के पश्चात दी जाएगी। तथापि, निर्धारित एक घंटे से पहले भाग एक पूरा करने वाले परीक्षार्थी भाग एक की उत्तर-पुस्तिका निरीक्षक को सौंपने के तुरंत बाद, भाग दो की उत्तर-पुस्तिका ले सकते हैं।	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 .
परीक्षार्थी, उपस्थिति-पत्रिका पर हस्ताक्षर किए बिना एवं अपनी उत्तर-पुस्तिका, निरीक्षक को सौंपे बिना, परीक्षा हॉल नहीं छोड़ सकता है। ऐसा नहीं करने पर, परीक्षार्थी को इस मॉड्यूल/पेपर में अयोग्य घोषित कर दिया जाएगा।	Candidate cannot leave the examination hall/room without signing on the attendance sheet and handing over his Answer sheet to the invigilator. Failing in doing so, will amount to disqualification of Candidate in this Module/Paper.
प्रश्न-पुस्तिका को खोलने के निर्देश मिलने के पश्चात एवं उत्तर देने से पहले उम्मीदवार यह जाँच कर यह सुनिश्चित कर ले कि प्रश्न-पुस्तिका प्रत्येक दृष्टि से संपूर्ण है।	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.

जब तक आपसे कहा न जाए तब तक प्रश्न-पुस्तिका न खोलें।

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

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 To access the services of operating system, the interface is provided by the.
A) System calls B) API
C) Library D) Assembly instructions
- 1.2 Which combination of keys is used to exit from terminal?
A) Ctrl + t B) Ctrl + z
C) Ctrl + d D) Ctrl + e
- 1.3 Which command is/are used to remove directory in Linux?
A) rmdir B) rm -r
C) only B) D) Both A) and B)
- 1.4 Which of the following command is used to create file in Linux?
A) touch B) cat
C) echo D) All of the above
- 1.5 Which of the following command is used to count number of lines in a file?
A) wc -l B) wc -c
C) wc -w D) None of these
- 1.6 Which command is used to change password of your Linux system?
A) password B) pass
C) change -p D) passwd
- 1.7 The permission bits of a file noname can set to _rwx_ _x_ _x_ by the command?
A) chmod 711 noname
B) chmod ug -rw noname
C) chmod 611 noname
D) None of the above
- 1.8 Which command is used to print the login shell of an user?
A) echo \$LOGIN B) echo \$SHELL
C) echo \$LSHELL D) All of the above
- 1.9 X-windows operating system is a user's interface that is _____.
A) Command line interface
B) Graphical user interface
C) Batch interface
D) Device interface

1.10 Which command is used to get help about a command in Linux?

- A) info B) cat
C) man D) help

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. (1x10)

- 2.1 Unix commands are entered at the shell prompt.
- 2.2 With pipes you can send the output of a command as the direct input to another command.
- 2.3 Fork() command used to create a new process.
- 2.4 Command y is used with vi editor to delete a single character.
- 2.5 Kernel is known as core of operating system.
- 2.6 If a deadlock is detected, the OS should always kill the process holding the most resources in the deadlock.
- 2.7 A time sharing system is always a multiprogramming system.
- 2.8 The ps command is used to provide information about the currently running processes.
- 2.9 A user can't delete a file if they do not own it.
- 2.10 The "execute" permission is never set on files by default.

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	Loader	A.	Echo
3.2	Bash	B.	Man
3.3	Multiprogramming operating system	C.	Passing information from one program process to another
3.4	X-Window	D.	Bootstrap
3.5	UNIX was originally invented at	E.	Print
3.6	Finding and correcting errors on a disk	F.	Special support from processor is not essential
3.7	To view the manual page for a topic	G.	FTP
3.8	Trap	H.	A Shell
3.9	_____ command will send text to the terminal display.	I.	Pr
3.10	PIPE	J.	Type of Interrupt
		K.	AT&T Bell Labs
		L.	FSCK
		M.	GUI

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. (1x10)

A.	Daemon	B.	Absolute path	C.	GUI
D.	0	E.	Graphic	F.	Operating System
G.	Relative path	H.	System call	I.	Process
J.	Multi-Program Environment	K.	1	L.	Pipe
M.	Vim				

- 4.1 The _____ is the program that manages the hardware of the computer system including the CPU, memory, storage devices, and input/output devices.
- 4.2 Windows is a _____ user interface OS.
- 4.3 _____ is editor which is useful in editing files.
- 4.4 The output of command: [-z ""] && echo 0 || echo 1 is _____.
- 4.5 _____ is a background process in Linux.
- 4.6 _____ refers to the path relative to the current path.
- 4.7 A _____ is part of the programming for the kernel.
- 4.8 _____ is represented by the character “|”, and it is used to combine two or more commands together.
- 4.9 An executing program of computer system is called _____.
- 4.10 System resources of computer system can be utilized better in _____.

PART TWO
(Answer any FOUR questions)

5.

- a) Write a shell script which takes one number from the user and displays the sum of $1+2+3+\dots+N$.
- b) With a diagram explain the three main components of a Linux system.
- c) What is the motivation for-
 - i) Multi-programming and
 - ii) Time sharing

(4+6+5)

6.

- a) Explain following command with two options:
 - i) mkdir
 - ii) mv
 - iii) grep
- b) How to change File Access Permissions? Explain with proper examples.

(9+6)

7.

- 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) What is the difference between symbolic and hard links and differentiate between using links and simply duplicating a file?

(8+7)

8.

- 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) Explain file compression and archiving in Linux.
- c) What is X-Window system?

(6+5+4)

9.

- a) Explain Linux I/O Redirection.
- b) Explain following terms:
 - i) TERM Environment variable
 - ii) GNOME Terminal
 - iii) Mount

(6+[3x3])

