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

अवधि: 03 घंटे **अधिकतम अंक: 100**
DURATION: 03 Hours **MAXIMUM MARKS: 100**

ओएमआर शीट सं.: **OMR Sheet No.:**						

रोल नं.: **Roll No.:** | | | | | | |

उत्तर-पुस्तिका सं.: **Answer Sheet No.:** | | | | | | |

परीक्षार्थी का नाम: **परीक्षार्थी के हस्ताक्षर:**
Name of Candidate: _____; Signature of candidate: _____

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 कर सकता है।	Question Paper is in English language. Candidate can answer in English language only.
इस मॉड्यूल/पेपर के **दो भाग** है। **भाग एक** में चार प्रश्न और **भाग दो** में पाँच प्रश्न है।	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 है तथा **भाग दो**, "व्यक्तिपरक" प्रकार है और इसके कुल अंक 60 है।	**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 है। **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 अथवा अपनी उत्तर-पुस्तिका, निरीक्षक को सौंपे बिना, परीक्षा हाल नहीं छोड़ सकता हैं। ऐसा नही 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 or 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 The free software foundation was established in relation with
A) BSD
B) Linux
C) GNU project
D) Microsoft

1.2 Multiple UNIX commands can be put into a file to form a program. This is called a
A) Pipe
B) Script
C) Link
D) Shell

1.3 To invoke "bash" you type
A) bsh
B) sh
C) bash
D) Either A) or C)

1.4 The part of the UNIX operating system that interacts with the hardware is called
A) GNU project
B) The Kernal
C) The Shell
D) Linux

1.5 Command used to open a connection to other UNIX host
A) Telnet
B) Command
C) pid
D) an

1.6 The name of the Superuser is
A) Master
B) Supreme
C) Root
D) President

1.7 The operating system controls
A) Hard drive
B) Processor
C) Printers
D) All of the above

1.8 Command used to take backup in UNIX
A) tar
B) du
C) ps
D) pwd

1.9 A file with permission status of RWXR_XR__ indicates
A) The owner has all permissions, the group has only Read permissions.
B) The owner has only Read and Execute permissions.
C) The owner has all permissions, the group has only Read and Execute permissions.
D) The group has all permissions, the owner has only Read and Execute permissions.

1.10 To list all the files in the directory including hidden files in long format use the following options with the "ls" command.
A) -l
B) -al
C) -lf
D) -hl

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 To start a process in the background, enter the command with # at the end.

2.2 Bourne shell was the first UNIX shell.

2.3 The purpose of the PATH variable is to tell the shell what directories to search when a command is entered.

2.4 Sort command is used to sort the lines of data in a file in reverse order.

2.5 In Linux everything is file.

2.6 The UNIX filesystem is hierarchical.

2.7 Shell takes care of inter process communication.

2.8 Init is considered as the super daemon in UNIX.

2.9 If two files on same partition point to the same inode structure they are called Soft links.

2.10 In awk programming $ sign is used for comment.

ROUGH WORK SPACE:

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	q!	**A.**	command is used to bring the background process to foreground.
3.2	head	**B.**	command gives the first byte where the difference is in the file1 & file2.
3.3	Hub	**C.**	Estimates file space usage.
3.4	awk	**D.**	search contents of a file for a particular pattern.
3.5	inode	**E.**	To quit out of vi without saving.
3.6	du	**F.**	change the priority of a running
3.7	Kernel	**G.**	command typically used for Modify/print selective contents of a file.
3.8	cmp	**H.**	command is used to display the top of the file.
3.9	sed	**I.**	core of the Unix operating system.
3.10	grep	**J.**	program that is primarily concerned with formatting output.
		K.	contains the information required to access the file.
		L.	Only processes running in that terminal.
		M.	An example of networking hardware.

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.	mkfs	**B.**	multitasking	**C.**	FTP
D.	ps	**E.**	file	**F.**	cat
G.	sed	**H.**	Operating System	**I.**	ZZ
J.	chsh	**K.**	shutdown	**L.**	ping
M.	vi				

4.1 The method used by UNIX to do _____ is called processor sharing.

4.2 _____ command is used to display and create files.

4.3 _____ command is used to display the characteristics of a process.

4.4 Command to save and exit from vi is _____.

4.5 _____ Controls and coordinates use of hardware among various applications and users.

4.6 _____ is used to create a new file system.

4.7 init θ (zero) is used to _____ the UNIX system.

4.8 The _____ commands can be used to copy files across systems.

4.9 Inode data structure is used to maintain _____ identification.

4.10 A user can change the default log-in shell using _____ command.

ROUGH WORK SPACE:

PART TWO
(Answer any FOUR questions)

5.

a) Describe UNIX file system organization.
b) What are the major activities of an operating system in regard to process management?
c) What is an X Server?
d) Who wrote Linux and how is it Licensed?

(5+4+3+3)

6.

a) What is the difference between home directory and working directory?
b) What is the difference between internal and external commands in Linux?
c) What are Pipes? Explain use of pipes.
d) What does nslookup do? Explain its two modes.
e) List some important characteristics of soft links.

(3+3+3+3+3)

7.

a) Write a Script to display the sum of all the digits of a number.
b) What do you understand by File modes in UNIX?
c) What are the fields in the /etc/passwd file?
d) What is the difference between Command mode & Insert mode in vi?

(6+3+3+3)

8.

a) What is use of sed command?
b) What is Linux Shell? What is Shell Script?
c) What are the process states in Linux?
d) Write a awk script to print square of numbers from 1 to 5.

(4+3+4+4)

9.

a) Explain system calls used for process management in Linux.
b) Discuss the role of a System Administrator.
c) What are the runlevels in Linux?

(5+5+5)

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ROUGH WORK SPACE:

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