A8-R4 / 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 : _____

परीक्षार्थी के हस्ताक्षर :
;**Signature of Candidate :** _____

परीक्षार्थियों के लिए निर्देश :

Instructions for Candidate :

कृपया प्रश्न-पुस्तिका, ओएमआर शीट एवं उत्तर-पुस्तिका में दिये गए निर्देशों को ध्यानपूर्वक 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 है तथा **भाग दो** ''व्यक्तिपरक'' प्रकार का 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, **ओएमआर उत्तर-पुस्तिका** पर 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. **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 पश्चात् 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** to the Invigilator.
परीक्षार्थी, उपस्थिति-पत्रिका पर हस्ताक्षर किए बिना और अपनी उत्तर-पुस्तिका, निरीक्षक को सौंपे बिना, परीक्षा हॉल/कमरा नहीं छोड़ सकते हैं। 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/her 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 पश्चात् एवं उत्तर लिखना आरम्भ करने से पहले उम्मीदवार जाँच कर यह सुनिश्चित कर लें कि प्रश्न-पुस्तिका प्रत्येक दृष्टि से संपूर्ण है।	After receiving the instruction to open the booklet and before starting to answer 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 attached to the question paper, following instructions therein.

    (1x10)

1.1 Which command is used to remove a directory ?

(A) rd

(B) rmdir

(C) dldir

(D) rdir

1.2 Which command is used to concatenate all files beginning with the string 'emp' and followed by a non-numeric character ?

(A) cat emp[!0-9]

(B) more [emp][!0-9]

(C) cat emp[x-z]

(D) cat emp[a-z]

1.3 Which symbol is used to separate more than one command in the same command line ?

(A) $

(B) #

(C) :

(D) ;

1.4 In vi editor, forward search is performed using the command :

(A) :pat

(B) ?pat

(C) /pat

(D) All of the above

1.5 _____ operator is used with pr command to start printing from a specific page.

(A) –

(B) #

(C) +

(D) &

1.6 Which of the following command is used to suspend a job ?

(A) ctrl-Z

(B) ctrl-Q

(C) bg

(D) $

1.7 Each process is identified by a unique integer called _____.

(A) PID.

(B) PPID.

(C) TID.

(D) PTID.

1.8 What is the symbolic constant for errno 2 ?

(A) EPERM

(B) ENDENT

(C) EIO

(D) EEXIST

1.9 dw will _____.

(A) deletes one line

(B) deletes one word

(C) deletes one character

(D) deletes one sentence

1.10 pwd command displays :

(A) Switch to current user home

(B) User password

(C) Present working directory

(D) Password file content

2. **Each statement below is either TRUE or FALSE. Choose the most appropriate one and ENTER in the "OMR" answer sheet attached to the question paper, following instructions therein.**

(1x10)

2.1 usermod command is used to modifies group attributes.

2.2 /etc/group file contains secure group account information.

2.3 /home contains shared library files and sometimes other kernel-related files.

2.4 The root directory has an inode number of 2.

2.5 If the notation > file is appended to any command that normally writes its output to standard output, the output of that command will be written to file instead of your terminal.

2.6 The debug command sends logging messages to the syslogd daemon, and consequently provokes system logging.

2.7 The file descriptor 0 is normally standard output (STDOUT).

2.8 mget command is used to download more than one file from the remote machine to the local machine.

2.9 reboot command is used to logout from the current login.

2.10 vi is case-sensitive. You need to pay attention to capitalization when using the commands.

3. **Match words and phrases in column X with the closest related meaning/word(s)/phrases in column Y. Enter your selection in the "OMR" answer sheet attached to the question paper, following instructions therein.** (1x10)

	X		Y
3.1	Command to get the kernel version in Linux	A.	Real Time
3.2	value that sets the default value of permissions for file or directory	B.	w
3.3	The system reads information from sensors and must respond within a fixed amount of time to ensure correct performance.	C.	ls –a
3.4	to create, change and modify timestamps of a file	D.	DNS
3.5	Threads	E.	AT&T Bell Labs
3.6	Command to test network connectivity	F.	export
3.7	to display all files, including the hidden files in the folder	G.	head
3.8	Translates hostnames to network addresses.	H.	FTP
3.9	Show who is logged on and what they are doing	I.	su
3.10	UNIX was originally invented at	J.	umask
		K.	ping
		L.	Light weight processes
		M.	Touch

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 attached to the question paper, following instructions therein.** (1x10)

A.	777	**B.**	BIOS	**C.**	bandwidth
D.	compiler	**E.**	init	**F.**	LPR
G.	ps	**H.**	halt	**I.**	su
J.	System Calls	**K.**	wireless	**L.**	666
M.	du				

4.1 _____ is a parent of all the process.

4.2 bluetooth is _____ communication medium.

4.3 _____ is measured in kbps, mbps and gbps.

4.4 _____ is used to send the contents of a file to a printer.

4.5 _____ instructs the hardware to stop all CPU functions.

4.6 System wide permissions for user file is _____.

4.7 A _____ is a program that converts the programming language code to a machine readable format.

4.8 The master boot record is the small bit of computer code that the _____ loads and executes to start the boot process.

4.9 _____ displays information about file size.

4.10 _____ command is used to change user.

PART TWO

(Answer any FOUR questions)

5. (a) What is a Process ? Draw Process state diagram and explain each state and transitions.

    (b) What is an Open Source Software ? Give some examples of Open Source Software.

    (c) Write a shell script to check whether the given number is prime or not.

                                                    (6+4+5)

6. (a) Discuss the role of a System Administrator.

    (b) What is an inode ? Explain different fields in an inode.

    (c) Write a shell script to print the Fibonacci sequence up to n^{th} digit.

                                                    (5+5+5)

7. (a) Explain Linux File Hierarchy Concepts.

    (b) What are the different modes of vi editor ?

    (c) What is X-Window system ? Explain in detail.   **(5+5+5)**

8. (a) How do you change File Access Permissions ? Give example.

    (b) What are differences between hard link and soft link ? By taking suitable example, explain how to create hard link and soft link ?

    (c) Write the format for /etc/ passwd file, explain each column.

                                                    (5+5+5)

9. (a) What are the usages CRON and CRONTAB in LINUX ?

    (b) Explain the following commands :

         (i)   more

         (ii)   finger

         (iii) rm

         (iv)   grep

         (v)   ls

         (vi)   cd

    (c) Explain GNOME Terminal.

    (d) What are the various commands used for taking backup ?

                                                    (3+6+3+3)

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SPACE FOR ROUGH WORK