

## 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 : \_\_\_\_\_;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 हैं तथा भाग दो "व्यक्तिपरक" प्रकार का 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, 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 will be used to see the available routes ?

- (A) show route
- (B) route status
- (C) netstat -r
- (D) None of the mentioned

**1.2** Which variable contains current shell process id ?

- (A) \$!
- (B) \$\$
- (C) \$\*
- (D) \$?

**1.3** Which of the following information is not present in an i-node ?

- (A) Owner ID
- (B) Name of the file
- (C) Size of the file
- (D) Both (A) and (B)

**1.4** What is the range of nice number in linux system ?

- (A) 0 to 19
- (B) -20 to 19
- (C) -20 to 0
- (D) -10 to 10

**1.5** The dmesg command :

- (A) Shows user login, logoff attempts
- (B) Shows the daemon log messages
- (C) Kernal log messages
- (D) Shows the syslog file for info messages

**1.6** Which command is used to terminate a process ?

- (A) shutdown
- (B) haltsys
- (C) cancel
- (D) kill

**1.7** The permission 746 can be represented as :

- (A) rwxrwx- -x
- (B) rw- -w-r-x
- (C) rwxr-xr-x
- (D) rwxr- -rw-

1.8 The directory structure used in Unix file system is called :

- (A) Hierarchical directory
- (B) Tree structured directory
- (C) Directed acyclic graph
- (D) Graph structured directory

1.9 Which command is used with vi editor to replace text from cursor to right ?

- (A) S
- (B) s
- (C) R
- (D) r

1.10 The command `echo welcome > /dev / tty :`

- (A) Echoes welcome in all the terminals that are switched on.
- (B) Echoes welcome in all the terminals that are logged on.
- (C) Echoes welcome only in the terminal in which it is run.
- (D) Both (A) and (C)

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

- 2.1 UNIX is a programming language.
- 2.2 UNIX is a multi-user and multi-tasking operating system.
- 2.3 In UNIX the process table is set-up when the process is created and is deleted when the process terminates.
- 2.4 `cmp` command compare given two files with byte by byte and display the first mismatch.
- 2.5 Relative path refers to the exact path as referenced from the root directory.
- 2.6 `telnet` command is used for remote login.
- 2.7 A filter is a program that takes input from standard inputs and performs some operation on that input to produce a result as standard output.
- 2.8 `mv` command is used to fetch the information about a file.
- 2.9 `kill-l` command is used to list down all the signals supported by your system.
- 2.10 `trap` command is used to clean up temporary files.

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	Commonly used to monitor network traffic	A.	/etc/hosts
3.2	Core of the Unix operating system	B.	head
3.3	An example of networking hardware	C.	whatis
3.4	Command is used to display the top of the file	D.	chmod
3.5	File Transfer Protocol	E.	UDP
3.6	File which contains hostname to IP address	F.	tcpdump
3.7	Gives short description of command	G.	- mv
3.8	Change file or directory permissions	H.	kernal
3.9	Command to switch to root user	I.	su
3.10	Reads the standard input and writes it to both the standard output and one or more files	J.	Hub
		K.	tee
		L.	FTP
		M.	Real time

4. Each statement below has a blank space to fit one of the word(s) of phrases in the list below. Enter your choice in the "OMR" answer sheet attached to the question paper, following instructions therein. (1x10)

A.	sort-r	B.	ps	C.	ftp
D.	/dev	E.	tar	F.	Process
G.	cat	H.	daemon	I.	System Calls
J.	xinit	K.	777	L.	Halt
M.	sudo				

4.1 \_\_\_\_\_ command is used to create compressed or uncompressed archive files.

4.2 The \_\_\_\_\_ program is used to start the X Window System server.

4.3 The device information can be obtained from the \_\_\_\_\_ directory.

4.4 An executing program of computer system is called \_\_\_\_\_.

4.5 System wide permissions for directory file is \_\_\_\_\_.

4.6 The \_\_\_\_\_ commands can be used to copy files across systems.

4.7 \_\_\_\_\_ is a background process in UNIX.

4.8 \_\_\_\_\_ is used to sort the lines of data in a file in reverse order.

4.9 \_\_\_\_\_ command is used to display the characteristics of a process.

4.10 \_\_\_\_\_ an application use to communicate with the Kernel.

**PART TWO**

**(Answer any FOUR questions)**

5. (a) Draw and explain UNIX architecture with its component.
- (b) Explain Zombie process, Orphan process and Daemon process in terms of UNIX.
- (c) What are the ways to kill a process in UNIX ? **(6+6+3)**
6. (a) What is piping ? How piping operator works ? Explain with example.
- (b) Differentiate between hard link and soft link.
- (c) What is file compression ? Which utility is used for compressing files in UNIX ? Describe its usage. **(5+5+5)**
7. (a) Why we need partitions in Linux ? Explain Root Partition and Swap Partition.
- (b) Explain usage of sed and some basic options of it.
- (c) What is the root account in Linux and how does it differ from a normal user account ? **(6+6+3)**

8. (a) What are the device types of Unix Devices ? Give example of each.
- (b) What is the role of window manager in Unix GUI ?
- (c) Write the format for /etc/shadow file, explain each column. **(5+5+5)**
9. (a) Discuss TCP/IP protocol suite. How TCP/IP is different from OSI suite ?
- (b) How to set system date and time from the shell prompt ?
- (c) Explain the following commands :
- (i) mv
  - (ii) curl
  - (iii) wc
  - (iv) more
  - (v) rmdir
  - (vi) grep **(6+3+6)**

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SPACE FOR ROUGH WORK

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