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

अवधिः 03 घंटे
DURATION: 03 Hours

अधिकतम अंक: 100
MAXIMUM MARKS: 100

<table>
<tr><td>ओएमआर शीट सं.:
OMR Sheet No.:</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

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 Candidates:**

<table>
<tr>
<td>कृपया प्रश्न-पुस्तिका, ओएमआर शीट एवं उत्तर-पुस्तिका में दिये गए निर्देशों को ध्यानपूर्वक पढ़ें।</td>
<td>Carefully read the instructions given on Question Paper, OMR Sheet and Answer Sheet.</td>
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<td>प्रश्न-पुस्तिका की भाषा अंग्रेजी है । परीक्षार्थी केवल अंग्रेजी भाषा में ही उत्तर दे सकता है ।</td>
<td>Question Paper is in English language. Candidate can answer in English language only.</td>
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<td>इस मॉड्यूल/पेपर के **दो भाग** हैं। **भाग एक** में चार प्रश्न और **भाग दो** में पाँच प्रश्न हैं।</td>
<td>There are **TWO PARTS** in this Module/Paper. **PART ONE** contains **FOUR** questions and **PART TWO** contains **FIVE** questions.</td>
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<td>**भाग एक** वैकल्पिक प्रकार का है जिसके कुल अंक 40 है तथा **भाग दो**, व्यक्तिपरक प्रकार है और इसके कुल अंक 60 हैं।</td>
<td>**PART ONE** is Objective type and carries 40 Marks. **PART TWO** is subjective type and carries 60 Marks.</td>
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<td>**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।</td>
<td>**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**.</td>
</tr>
<tr>
<td>**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।</td>
<td>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**.</td>
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<td>परीक्षार्थी, उपस्थिति-पत्रिका पर हस्ताक्षर किए बिना और अपनी उत्तर-पुस्तिका, निरीक्षक को सौंपे बिना, परीक्षा हॉल /कमरा नहीं छोड़ सकते हैं। ऐसा नही करने पर, परीक्षार्थी को इस मॉड्यूल / पेपर में अयोग्य घोषित कर दिया जाएगा।</td>
<td>**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.**</td>
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<tr>
<td>प्रश्न-पुस्तिका को खोलने के निर्देश मिलने के पश्चात एवं उत्तर लिखना आरम्भ करने से पहले उम्मीदवार यह जाँच कर सुनिश्चित कर लें कि प्रश्न-पुस्तिका प्रत्येक दृष्टि से संपूर्ण है।</td>
<td>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.</td>
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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.**

(1×10)

1.1 In operating system, each process has its own

(A) Address space and global variables

(B) Open files

(C) Pending alarms, signals and signal handlers

(D) All of the options

1.2 For most computers, the bootstrap is stored in _____.

(A) RAM

(B) ROM

(C) Cache

(D) Hard Disk

1.3 Which is not an X client ?

(A) xargs

(B) xterm

(C) xclock

(D) xcalc

1.4 Which command removes job from printer spooling queue ?

(A) Ipq

(B) Ipr

(C) Iprm

(D) Iprloc

1.5 The 'pipe' system call in UNIX is used to

(A) Create a named pipe

(B) Create an unnamed pipe

(C) Create a duplicate of a file

(D) None of the options

1.6 What content of the file test will be displayed if following code is excuted ?

sed –n '2,5 p' test

(A) All lines except 2 and 5

(B) All lines except 2 to 5

(C) Only line 2 and 5

(D) Lines 2 to 5

1.7 Which of the following is used to find for files using name and ignoring case ?

(A) find -iname "practical.c"

(B) find -name "practical.c"

(C) find "practical.c"

(D) None of the options

1.8 Which is correct command to set read permission to user, group and other to permission.txt file ?

(A) chmod 222 permission.txt

(B) chmod 111 permission.txt

(C) chmod 444 permission.txt

(D) chmod 121 permission .txt

1.9 Which of the following command is used to check and repair a file system ?

(A) ping

(B) format

(C) du

(D) fsck

1.10 Which is a special shell variable ?

(A) $1

(B) $!

(C) $@

(D) All of the options

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. (1×10)**

2.1 A signal is a software interrupt.

2.2 File management is the task of the shell in UNIX.

2.3 A user can have many different invocations of xterm running at once on the same display.

2.4 In vi editor, <ESC> key is used to terminate input mode.

2.5 forks() is used to create new process.

2.6 X window is based on client server computing.

2.7 PATH is a shell variable.

2.8 Init 1 run-level is used for system shutdown.

2.9 The /mnt is the only mount point possible in UNIX system.

2.10 gzip is used for file compression.

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.

(1×10)

	X		Y
3.1	Change password	A.	who
3.2	Translate characters	B.	su
3.3	Number of arguments supplied to a script	C.	-O
3.4	Current working directory	D.	passwd
3.5	Display currently logged in users	E.	touch
3.6	Copy file	F.	tr
3.7	field separator in cut command	G.	pwd
3.8	Option of cpio used for copying data from tape to disk	H.	create
3.9	root account	I.	$#
3.10	Creating new empty file	J.	cp
		K.	echo
		L.	$$
		M.	-d

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. (1×10)

A.	telnet	B.	wall	C.	init
D.	PCB	E.	df	F.	sh
G.	Is –Ia	H.	hierarchical	I.	DNS
J.	/usr/bin	K.	Printer	L.	HardDisk
M.	Is –h				

4.1   UNIX has a _____ file organization.

4.2   Most commonly used commands are present in _____ directory.

4.3   Remote login to a machine can be done via _____ command.

4.4   _____ is block device.

4.5   _____ shows hidden file.

4.6   The _____ command is used to display a list of free blocks.

4.7   The _____ command is used to give message to all logged in user.

4.8   _____ contains the necessary information about a process.

4.9   Conversion of domain name to an IP address is done by _____.

4.10   _____ is a parent of all the process.

PART TWO

(Answer any FOUR questions)

5. (A) Explain UNIX architecture with its component.

(B) 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.

(C) What are the important roles of the system administrator in Linux ?

(6+5+4)

6. (A) Draw the process state transition diagram. What are the different states of a process ? Explain each in brief.

(B) Explain X terminals in detail.

(C) What is absolute and relative pathnames ? Explain with example.

(7+5+3)

7. (A) Give details about /etc/group File. Which are the fields in /etc/group file ? What are the reasons to assign to one or more groups to user ?

(B) What is login shell and Non login shell ? Which two environment variables are used to check whether the shell is a login-shell or a non-login shell and how to find out whether the shell is a login-shell or a non-login shell with the help of environment variables ?

(8+7)

8. (A) Explain diff command in details. Also explain –b, -w, -i option used with diff command.

(B) Write a shell script which takes one number from user and finds factorial of a given number.

(C) How to set system date and time from the shell prompt ?

(8+5+2)

9. (A) Which are the fundamental file types available in Linux ? Give brief about each type.

(B) Write a short note on System Call.

(C) Write a command to do following Job :

(i) Add new user in the system.

(ii) Print the effective user ID.

(iii) Print the file name of the terminal connected to standard input.

(7+5+3)

SPACE FOR ROUGH WORK