

## 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.: 

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Roll No.: 

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उत्तर-पुस्तिका सं.: 

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Answer Sheet No.: 

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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 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 <b>TWO PARTS</b> in this Module/Paper. <b>PART ONE</b> contains <b>FOUR</b> questions and <b>PART TWO</b> contains <b>FIVE</b> questions.
भाग एक "वैकल्पिक" प्रकार का है जिसके कुल अंक 40 हैं तथा भाग दो, "व्यक्तिपरक" प्रकार है और इसके कुल अंक 60 हैं।	<b>PART ONE</b> is Objective type and carries 40 Marks. <b>PART TWO</b> 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।	<b>PART ONE</b> is to be answered in the <b>OMR ANSWER SHEET</b> only, supplied with the question paper, as per the instructions contained therein. <b>PART ONE</b> is <b>NOT</b> to be answered in the answer book for <b>PART TWO</b> .
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 <b>PART ONE</b> is <b>ONE HOUR</b> . Answer book for <b>PART TWO</b> will be supplied at the table when the answer sheet for <b>PART ONE</b> is returned. However, candidates who complete <b>PART ONE</b> earlier than one hour, can collect the answer book for <b>PART TWO</b> immediately after handing over the answer sheet for <b>PART ONE</b> .
परीक्षार्थी, उपस्थिति-पत्रिका पर हस्ताक्षर किए बिना एवं अपनी उत्तर-पुस्तिका, निरीक्षक को सौंपे बिना, परीक्षा हाल नहीं छोड़ सकता 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 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 Unix OS was first developed by

- A) Dennis Ritchie
- B) Bjarne Stroustrup
- C) Ken Thompson
- D) Brian Kernighan

1.2 Which of the following is a command for searching a pattern in a file?

- A) Find
- B) group
- C) look up
- D) None of the above

1.3 Shell Program is stored in a file called

- A) Unix
- B) sh
- C) dd
- D) cc

1.4 Which one of the following is not a client server application?

- A) Internet chat
- B) Web Browsing
- C) E-mail
- D) Ping

1.5 Which of the following commands is used to count the total number of lines, words and characters contained in a file?

- A) count p
- B) wcount
- C) wc
- D) count w

1.6 Which of the following uses UDP as the transport protocol?

- A) HTTP
- B) Telnet
- C) DNS
- D) SMTP

1.7 Windows 95 is

- A) Multitasking
- B) Multiprocessing
- C) Single user single tasking
- D) None of the above

1.8 File descriptors are brought to primary storage when

- A) file is opened
- B) file is created
- C) file is modified
- D) file is destroyed

1.9 For batch process, the access is

- A) Random access
- B) Sequential access
- C) Indexed sequential access
- D) Index sequential

1.10 Which command is used to display the directory attributes rather than its contents?

- A) *ls -l -d*
- B) *ls -l*
- C) *ls -x*
- D) *ls -F*

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 File initiation and termination is done by basic I/O supervisor.

2.2 The security of a system can be improved by audit log.

2.3 cat is not a filter.

2.4 :wq is used with vi editor to save file and to quit the editing mode.

2.5 Bandwidth refers to the capacity of the communication line.

2.6 A program in execution is called a function.

2.7 TCP is used to transfer data/files among computers on the internet.

2.8 Absolute path is relative to current path.

2.9 Telnet is a remote login.

2.10 \$# shows the count of the arguments passed to the script.

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	Command which displays currently running program.	A.	\$
3.2	These are the processes which have died but whose exit status is still not picked by the parent process.	B.	Malicious access
3.3	Secret key encryption is also known as	C.	Block special file
3.4	System calls are usually invoked by	D.	ps
3.5	Command used to take the cursor to the end of a line	E.	Disks
3.6	Fastest memory	F.	uname -r
3.7	Command to display your working directory	G.	Software interrupt
3.8	Unauthorized destruction of data	H.	chmod
3.9	Not a human interface device	I.	Zombie
3.10	Command to change the file permission	J.	number of characters
		K.	pwd
		L.	Symmetric encryption
		M.	Register

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.	Object	B.	\$	C.	read
D.	init	E.	Wireless	F.	Swapping
G.	Operating system	H.	ps-ag	I.	fork
J.	touch	K.	Bandwidth	L.	Modem
M.	od				

- 4.1 A \_\_\_\_\_ is used to capture some specific property of the object.
- 4.2 \_\_\_\_\_ can be used to find out about all running processes.
- 4.3 \_\_\_\_\_ metacharacters will be recognized by the shell, even if it comes within double quotes.
- 4.4 Page making process from main memory to disk is called \_\_\_\_\_.
- 4.5 \_\_\_\_\_ is creation of new process.
- 4.6 \_\_\_\_\_ is measured in kbps, mbps and gbps.
- 4.7 A device that convert digital signal to analog signal is \_\_\_\_\_.
- 4.8 Infrared is \_\_\_\_\_ communication medium.
- 4.9 \_\_\_\_\_ command is used to display file contents in octal form.
- 4.10 Sector interleaving in disk is done by \_\_\_\_\_.

**PART TWO**  
**(Answer any FOUR questions)**

**5.**

- a) Discuss interactive process management tools.
- b) Explain fork() system call.
- c) What is the use of 'grep' command?

**(5+5+5)**

**6.**

- a) Discuss TCP/IP protocol suite. How TCP/IP is different from OSI suite.
- b) What are external and internal commands in UNIX?
- c) What are various modes in a file system?

**(6+4+5)**

**7.**

- a) What is vi editor? What are the different modes of vi editor?
- b) What is UNIX shell? Draw the architecture of UNIX operating system.
- c) What is operating system? Describe the functions of an operating system in detail.

**(5+5+5)**

**8.**

- a) What is an Open Source Software? Give some examples of Open Source Software.
- b) *sed* is a stream editor. Explain usage of *sed* and some basic options of it.
- c) What is difference between \$\$ and \$!? What are zombie processes?
- d) Explain the following terms:
  - i) Environment variables
  - ii) Control structures

**(3+3+3+6)**

**9.**

- a) What is FOR loop in UNIX? Write the syntax for it.
- b) What is the use of break and continue command?
- c) How to find all the files created after a predefined date time, say after 10<sup>th</sup> April 10AM? How to print the contents of a file line by line?
- d) What do you mean by device file? Where can you locate them? What are the various types of device files in UNIX?

**(3+3+4+5)**

