

**III B. Tech I Semester Regular Examinations, October/November - 2018****UNIX PROGRAMMING**

(Common to Computer Science Engineering and Information Technology)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)  
 2. Answer **ALL** the question in **Part-A**  
 3. Answer any **FOUR** Questions from **Part-B**
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**PART-A**

1. a) What is a System call in UNIX? [2M]
- b) What types of files are used to represent physical devices in UNIX file system? [2M]
- c) List out different types of Shell. [2M]
- d) Write a 'grep' command to print the lines that starts and ends with the word "UNIX". [3M]
- e) Explain the Purpose of *export* command. [3M]
- f) Mention the Tasks of background processes. [2M]

**PART -B**

2. a) What is UNIX? List out various versions of UNIX? [4M]
- b) Discuss the role of kernel in operating system. [4M]
- c) With a neat sketch, explain the directory structure of UNIX operating system. [6M]
3. a) Explain the implementation details of UNIX file system. [7M]
- b) Describe the attributes and permissions of a file in UNIX file system. [4M]
- c) Which command is used to change the file permissions in UNIX? Explain with an example. [3M]
4. a) What is a Shell? Explain the two different duties of a Shell. How can you create a sub shell? How can you move to the parent shell after creating a sub shell? [7M]
- b) What is Redirection? Explain the various commands used for redirection. [7M]
5. a) Define the *grep* family. Mention the primary difference between *fgrep* and the other two members of the *grep* family. [7M]
- b) With a neat diagram, describe an *awk* utility's view of a file and also explain the file buffers and record buffers of *awk*. [7M]
6. a) What is the use of 'eval' command in C shell and also explain the execution of 'eval' command with suitable example. [7M]
- b) Is it possible to pause the execution of a shell script for a specified time period? Give explanation. [7M]
7. a) Illustrate the syntax of *trap* command. [7M]
- b) Explain in sequence the steps to convert a background process to a foreground process. [7M]

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**PART -A**

1. a) Difference between a System call and UNIX command. [3M]
- b) Which command will list the hidden files in UNIX? [2M]
- c) What is a Shell variable? [2M]
- d) Write the '*sed*' command to replace the pattern "SED" from the 7<sup>th</sup> occurrence to the end of file. [3M]
- e) What does *expr* do in a shell script? [2M]
- f) What is a background process in UNIX? [2M]

**PART -B**

2. a) With a neat sketch, explain the architecture of UNIX operating system. [7M]
- b) Explain the following UNIX commands [7M]  
 i) mkdir      ii) rm      iii) tar      iv) cat
3. a) What is the *inode* in UNIX? Where are inodes stored in UNIX file system? Explain. [7M]
- b) Explain the commands that are available in UNIX file system to change the permissions of a file. [7M]
4. a) What is an Environment variable? List out the common environment variables that control the user environment in Shell. [7M]
- b) Compare different loops used in Shell script [3M]
- c) Write a shell script to get current date, time, user name and current working directory. [4M]
5. a) What is *grep* command? Explain the operation of the grep command with a neat flowchart? And Illustrate the working of the grep command with a suitable example. [7M]
- b) Explain in brief various categories of *awk* patterns. [7M]
6. a) Explain the purpose of *set* command with an example. [7M]
- b) Write a Shell script describing integer and real arithmetic [7M]
7. a) What is a Child process? How it is created? Explain the relationship between parent process and child process. [8M]
- b) Explain the use of *stty* command along with its syntax. [6M]

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**PART -A**

- |    |    |  |      |
|----|----|--|------|
| 1. | a) | List the Features of UNIX operating system.                      | [3M] |
|    | b) | List the Fields of <i>aninode</i> structure in UNIX file system. | [3M] |
|    | c) | What is the PATH environmental variable in UNIX?                 | [2M] |
|    | d) | Is AWK a programming language?                                   | [2M] |
|    | e) | Give the Use of here document in shell script.                   | [2M] |
|    | f) | What is the Syntax of Trap command.                              | [2M] |

**PART -B**

- |    |    |  |      |
|----|----|--|------|
| 2. | a) | Compare and contrast library function, system call and Unix command.   | [7M] |
|    | b) | What is command substitution in a shell? Why is it important? Explain with an example.   | [7M] |
| 3. | a) | What are Links and Symbolic links in UNIX file system? Explain.  | [7M] |
|    | b) | Explain the <i>chown</i> and <i>chgrp</i> commands in UNIX with an example.  | [7M] |
| 4. | a) | Is it possible to pipe output of a command as an argument to a shell script? Justify your answer.  | [7M] |
|    | b) | Explain about various loop control statements of C shell with a sample example.  | [7M] |
| 5. | a) | Define the ' <i>sed</i> ' utility? Give the format of the ' <i>sed</i> ' and Explain the operation of the ' <i>sed</i> ' utility with suitable diagrams. | [7M] |
|    | b) | Explain the differences between grep and sed with a suitable example.  | [7M] |
| 6. | a) | What are positional parameters? How a C shell script is invoked by passing parameters? Explain.  | [7M] |
|    | b) | How we know the exit status of a command in C shell? Explain.  | [7M] |
| 7. | a) | Explain in detail about the internal and external commands in UNIX.  | [6M] |
|    | b) | What happens to the child process when the parent process kills/dies first? Explain with an example  | [8M] |

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**PART -A**

1. a) How Unix is different from other Operating Systems? [2M]
- b) Interpret the command **chmod 644** [2M]
- c) In what way Shell variables are different from Environmental variables. [3M]
- d) Write a *sed* command to replace the word 'UNIX' with 'LINUX' in a given text file. [3M]
- e) What does \$# mean in shell script? [2M]
- f) Which command displays all current terminal settings? [2M]

**PART -B**

2. a) What is UNIX operating system? Explain various components of UNIX operating system. [7M]
- b) Is it possible to run multiple commands of UNIX in one time? Justify your answer with proper explanation. [7M]
3. a) Discuss the UNIX file structure and directories. [7M]
- b) Explain the format of *chmod* and *chown* commands in UNIX. [7M]
4. a) What are the advantages and disadvantages of Shell scripting? [5M]
- b) Write a Shell Script to display result based on the value returned from a function call. [9M]
5. a) Compare the three utilities of the grep family with a clear explanation [7M]
- b) List out the different string functions of *awk* utility and explain any three. [7M]
6. a) What are positional parameters in C shell scripting? Explain the meaning of the \$0, \$1, \$2, \${9}, \$\*, and \$#. [7M]
- b) List out the important uses of *exec* command in shell script. [3M]
- c) Write shell scripts to illustrate the use of continue and *break* statements. [4M]
7. a) Differentiate between Internal and External commands of UNIX. [9M]
- b) Explain the importance of *kill* command in UNIX with examples. [5M]

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