Question Paper

MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal School of Information Sciences (MSIS), Manipal
First Semester Master of Engineering - ME (Cyber Security) Degree Examination - November / December 2023
Linux OS and Scripting [CYS 5103]

Marks: 100   **Duration: 180 mins.**

Saturday, November 25, 2023

Answer all the questions.

1)	(a) Elaborate on any 3 important functions of an Operating System.(6) (b) Explain any 2 Types of Kernel and the advantage of each. (4)	(10)
2)	Briefly explain (a) Types of Operating Systems.(b) Boot Procedure. (5 + 5)	(10)
3)	(a) Discuss File System in Linux, explain why root file system and /proc are used.(5) (b) Briefly explain Inodes in Linux.(5)	(10)
4)	(a) What details of a process are stored in a Process Control Block, explain briefly.(5) (b) Elaborate on Process Synchronization.(5)	(10)
5)	(a) Briefly Explain Scheduling Criteria used for CPU Scheduling .(5) (b) What is Inter Process Communication? Explain any one method used to achieve the same. (5)	(10)
6)	. (a) Write Short notes on I/O Redirection in Linux. (5) (b) Explain how file permissions can be modified using the 'chmod' command.(5)	(10)
7)	(a)What is a Regular expression, explain the structure of a Regular expression. (5) (b) Write a one line script to do the following task (Do not use grep) i) Extract 5th and 10th character from the file. ii) Delete all the duplicate lines iii) Change lower case letters to upper case iv) Display 3rd line to 10th line from the file v) To List currently working users in a file called "current_user". (5)	(10)
8)	(a)Explain the utilities in Linux with an example for each command given below: i) cut ii) join iii) tr (6) (b) Write a shell script to calculate Fibonacci number series.(4)	(10)
9)	(a)How are arrays declared and used in Bash, explain with example. How do you loop through an array of numbers? (5) (b) Write sed scripts that will do the following. (i) Delete blank lines only if there are 2 continuous blank lines. (ii) Replace the word "Unix" with "Linux", globally. (iii) That will work like the command "cat" (iv) That will delete every line that starts with a "#". (v) That will show all the special characters in a file. (5)	(10)
10)	What is the need for automation of jobs? Explain the usage of any 3 automation Libraries available in Python. (4+6)	(10)

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