YENISI - IV : SUMMER - 2016

Subject : Unix and Linux Internals

Day : Saturday
Date : 04/06/2016

S.D.E. 30402

Time : 02.00 P.M. TO 05.00 P.M.
Max Marks : 80 Total Pages : 2

N.B.

1) Answer any **FOUR** questions from Section-I. Each question Carries **12** marks.
2) Answer any **TWO** questions from Section-II. Each question Carries **16** marks.
3) Answer all questions in the **SAME** answer book.

SECTION-I

Q.1 Explain the architecture of Unix operating system in detail. Draw appropriate block diagrams to support your explanation.

Q.2 What is a process-state? What are the different process-states and state-transitions involved in Unix environment?

Q.3 What is a virtual-address and physical-address? How a given virtual address gets translated into its corresponding physical address?

Q.4 List the broad categories of devices in Unix/Linux environment. Also explain each of them with an appropriate example.

Q.5 What are the different data structures involved in file management sub-system? Explain how they work cohesively to provide the file management services in Unix/Linux environment.

Q.6 Differentiate between the following;

a) Single-User Operating System Vs Multi-user Operating System
b) 'fork' Vs 'exec' system call

Q.7 Write short notes on the following;

a) Piping
b) Standard directories in Unix/Linux environment

SECTION-II

Q.8 Write shell scripts for the following scenarios;

a) To receive a message from the user and display the same on the screen after toggling the case (i.e. lower-case to upper-case and upper-case to lower-case)
b) To print the Pascal's triangle for a given value of 'N' where 'N' is the number of lines to be printed.

P. T.O.

Q.9 Write shell commands, their corresponding usage-syntax, and an example describing its use for the following scenarios;

i) Remove or delete a directory

ii) Sort file content

iii) Change owner of a file

iv) Send a message to one who has logged in or not

v) List of current users logged in the system

vi) Stop or terminate a process

vii) Execute a command at given time

viii) View contents of a file one screen at a time

Q.10 Write C-programs to meet the following requirements;

Program-A and Program-B are running on two different computer systems. Program-A sends a message to Program-B and Program-B displays that message on the screen of its system.

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