SAVITIBAI PHULE UNIVERSITY

M.Sc.(Computer Science) Sem-I

Practical Examination (From 2023-2024)

SUBJECT: CS-504-MJP: Lab Course on CS-501-MJ (Advanced Operating System)

Time: 3 Hours **Max. Marks: 35**

Q.1) Take multiple files as Command Line Arguments and print their inode numbers and file types **[10 Marks]**

Q.2) Write a C program to send SIGALRM signal by child process to parent process and parent process make a provision to catch the signal and display alarm is fired.(Use Kill, fork, signal and sleep system call) [**20 Marks]**

Q.3) Viva **[5 Marks]**

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Time: 3 Hours **Max. Marks: 35**

Q.1) Write a C program to find file properties such as inode number, number of hard link, File permissions, File size, File access and modification time and so on of a given file using stat() system call. **[10 Marks]**

Q.2) Write a C program that catches the ctrl-c (SIGINT) signal for the first time and display the appropriate message and exits on pressing ctrl-c again. [**20 Marks]**

Q.3) Viva **[5 Marks]**

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Time: 3 Hours **Max. Marks: 35**

Q.1) Print the type of file and inode number where file name accepted through Command Line **[10 Marks]**

Q.2) Write a C program which creates a child process to run linux/ unix command or any user defined program. The parent process set the signal handler for death of child signal and Alarm signal. If a child process does not complete its execution in 5 second then parent process kills child process. **[20 Marks]**

Q.3) Viva **[5 Marks]**

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Time: 3 Hours **Max. Marks: 35**

Q.1) Write a C program to find whether a given files passed through command line arguments are present in current directory or not.

[10 Marks]

Q.2) Write a C program which creates a child process and child process catches a signal SIGHUP, SIGINT and SIGQUIT. The Parent process send a SIGHUP or SIGINT signal after every 3 seconds, at the end of 15 second parent send SIGQUIT signal to child and child terminates by displaying message "My Papa has Killed me!!!".

[**20 Marks]**

Q.3) Viva **[5 Marks]**

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Time: 3 Hours **Max. Marks: 35**

Q.1) Read the current directory and display the name of the files, no of files in current directory **[10 Marks]**

Q.2) Write a C program to create an unnamed pipe. The child process will write following three messages to pipe and parent process display it.

Message1 = “Hello World”

Message2 = “Hello SPPU”

Message3 = “Linux is Funny” [**20 Marks]**

Q.3) Viva **[5 Marks]**

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Time: 3 Hours **Max. Marks: 35**

Q.1) Display all the files from current directory which are created in particular month

[10 Marks]

Q.2) Write a C program to create n child processes. When all n child processes terminates, Display total cumulative time children spent in user and kernel mode

[**20 Marks]**

Q.3) Viva **[5 Marks]**

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Time: 3 Hours **Max. Marks: 35**

Q.1) Write a C Program that demonstrates redirection of standard output to a file

[10 Marks]

Q.2) Implement the following unix/linux command (use fork, pipe and exec system call)

ls –l | wc –l [**20 Marks]**

Q.3) Viva **[5 Marks]**

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Time: 3 Hours **Max. Marks: 35**

Q.1) Write a C program that redirects standard output to a file output.txt. (use of dup and open system call). **[10 Marks]**

Q.2) Implement the following unix/linux command (use fork, pipe and exec system call)
ls –l | wc –l.

[**20 Marks]**

Q.3) Viva **[5 Marks]**

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Time: 3 Hours **Max. Marks: 35**

Q.1) Generate parent process to write unnamed pipe and will read from it

[10 Marks]

Q.2) Write a C program to Identify the type (Directory, character device, Block device, Regular file, FIFO or pipe, symbolic link or socket) of given file using stat() system call.

[**20 Marks]**

Q.3) Viva **[5 Marks]**

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Time: 3 Hours **Max. Marks: 35**

Q.1) Write a program that illustrates how to execute two commands concurrently with a pipe.

[10 Marks]

Q.2) Generate parent process to write unnamed pipe and will write into it. Also generate child process which will read from pipe

[**20 Marks]**

Q.3) Viva **[5 Marks]**

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Q.1) Write a C program to get and set the resource limits such as files, memory associated with a process **[10 Marks]**

Q.2) Write a C program that redirects standard output to a file output.txt. (use of dup and open system call). [**20 Marks]**

Q.3) Viva **[5 Marks]**

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Time: 3 Hours **Max. Marks: 35**

Q.1) Write a C program that print the exit status of a terminated child process

[10 Marks]

Q.2) Write a C program which receives file names as command line arguments and display those filenames in ascending order according to their sizes. I) (e.g $ a.out a.txt b.txt c.txt, …)

[**20 Marks]**

Q.3) Viva **[5 Marks]**

SAVITIBAI PHULE UNIVERSITY

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Time: 3 Hours **Max. Marks: 35**

Q.1) Write a C program that illustrates suspending and resuming processes using signals

[10 Marks]

Q.2) Write a C program that a string as an argument and return all the files that begins with that name in the current directory. For example > ./a.out foo will return all file names that begins with foo

[**20 Marks]**

Q.3) Viva **[5 Marks]**

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Q.1) Display all the files from current directory whose size is greater that n Bytes Where n is accept from user. **[10 Marks]**

Q.2) Write a C program to find file properties such as inode number, number of hard link, File permissions, File size, File access and modification time and so on of a given file using stat() system call. [**20 Marks]**

Q.3) Viva **[5 Marks]**

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Q.2) Write a C program which creates a child process to run linux/ unix command or any user defined program. The parent process set the signal handler for death of child signal and Alarm signal. If a child process does not complete its execution in 5 second then parent process kills child process [**20 Marks]**

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Q.1) Display all the files from current directory which are created in particular month

[10 Marks]

Q.2) Write a C program which create a child process which catch a signal sighup, sigint and sigquit. The Parent process send a sighup or sigint signal after every 3 seconds, at the end of 30 second parent send sigquit signal to child and child terminates my displaying message "My DADDY has Killed me!!!". [**20 Marks]**

Q.3) Viva **[5 Marks]**

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Q.1) Read the current directory and display the name of the files, no of files in current directory **[10 Marks]**

Q.2) Write a C program to implement the following unix/linux command (use fork, pipe and exec system call). Your program should block the signal Ctrl-C and Ctrl-\ signal during the execution.

i. Ls –l | wc –l **[20 Marks]**

Q.3) Viva **[5 Marks]**

SAVITIBAI PHULE UNIVERSITY

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