

Question Paper

Exam Date & Time: 12-Oct-2020 (09:30 AM - 01:00 PM)



BMS COLLEGE OF ENGINEERING

Autonomous Institute Affiliated to VTU, Supplementary Semester End Main Examinations, October 2020

Unix System Programming [15IS4DCUSP]

Marks: 100

Duration: 210 mins.

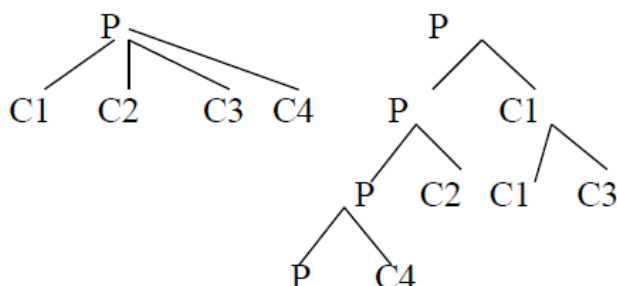
ISE, Sem:IV

Answer all the questions.

Instructions:

1. Answer FIVE full questions using the given internal choice
2. Missing data, if any, may be suitably assumed

- 1) Suppose Vanitha wants to query system-wide configuration limits that are implemented on a given system, like she wants to know maximum number of child processes that may be owned by a process simultaneously. Provide a solution for the problem with a program. (5)
- a)
- b) Given the following function declaration interpret the meaning if i) The user is using ANSI C ii) User is using ANSI C++ (5)
- int foo();
- c) Explain UNIX kernel support for files with a neat diagram. (10)
- 2) Develop a program to emulate the Unix cp command. (5)
- a)
- b) Assume a file is opened for blocking read-write access and the process needs to change the access to non-blocking and in write-append mode. Write a snippet to change the access control flag of the file. (5)
- c) Develop a program to print the values of all environment strings. (6)
- d) Assume there is a file "read1.txt" with data "It is fun learning unix programming". Develop a program to read data from 12th position and display it on the screen. (4)
- 3) Develop programs to create child processes as shown below. (5)
- a)



- b) User1 wants to execute an interpreter file “**IntFile**” without disturbing the current process. The interpreter file “IntFile” contains the line as shown below. (5)

#!/home/user1/sec.

Develop a program for this scenario, also analyze the output.

- c) Assume a child process is created and the parent process terminates before the child. (5)
What would you call such process and Develop a program for the same?
- d) There are four child processes c1, c2, c3 and c4 for P. P wants to pick up the (5)
Terminating status of c3. Write a snippet to make this happen.

[OR]
4) Explain Network Logins. Explain sequence of processes involved in executing (7)

- a) TELNET server.

b) (8)

Differentiate between

i) wait() ii)waitpid iii)wait3 iv)wait4

- c) Discuss the characteristics of process groups and sessions. (5)

- 5) Discuss the different source of signals. What are the three dispositions the process has (5)
a) when signals occur?

- b) Develop a program to add SIGINT signal to the signal mask of the process and clears (5)
the SIGSEGV signal from the process signal mask.

- c) Develop a program to emulate Sleep API. (5)

- d) User wants to schedule certain task like remainder to study at particular intervals of (5)
time. Develop a program to depict the scenario.

- 6) Define pipes. What are their limitations? Write a C Program that sends “HELLO (10)
a) WORLD” message to the child process through the pipe. The child on receiving this
message should display it on the standard output.

- b) Explain the different APIs used with message queues. (10)

[OR]
7) Define socket? Discuss how to create and destroy a socket. (6)

- a) Explain the concept of shared memory with an example. (6)

- c) Explain how FIFO can be used to implement client-server communication model, with (8)

a neat diagram.

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