COURSE NAME: [illegible] SYSTEMS LABORATORY

Read the following instructions carefully before attempting the question paper.
1. Attempt only the question allocated by neutral examiner out of all the given questions. If some other question is attempted by the candidate, it shall lead to cancellation of the examination.
2. Submit the question paper along with the answer sheet to the invigilator before leaving the examination hall/lab.
3. Fill all the details mentioned below very carefully in the space provided.

Signature of student:

Registration No. :_____

Question No. Allocated to candidate:_____
(To be filled by Neutral Examiner)

It is certified that I have verified that the candidate has attempted the allocated question only.

*Signature of Neutral Examiner:*_____
*Name of Neutral Examiner:*_____

*Signature of Invigilator:*_____
*Name of Invigilator:*_____

*UID:*_____

*UID:*_____

Q1 A. WAP to implement IPC using unnamed pipes.
B. Write C program to create a file1.txt in which write last 10 characters which is read from file2.txt. Also print the total size of file file2.txt and last ten value.

Q2 A. Write a File In Reverse Using Lseek() System Call
B. Using semaphores write a program to synchronize the process such that multiple threads are able to read a shared variable at one time but only one thread is allowed to increment the shared variable. Implement the same using test case where one thread increments the values the other threads are not allowed to execute the read function and increment function.

Q3 A. Create two threads. One thread will add two numbers (c=a+b) and the second thread will subtract the numbers (d=a-b).Both threads will return the result to the main() function and product of returned values (c*d) will be printed by the main() function.
B. Write a program to write into a pipe using popen() and pclose() functions

Q4 A. WAP using system calls which will read from 10th character to 25th character from a file opened in read only mode.
B. WAP to implement race condition using semaphores.

Q5 A. Write a program using system calls to create hierarchy of four processes i.e. process P having child P1 and P2, process P2 having child P3 and process P4. Use function getppid(),getpid() to know id's of the processes.
B. Using semaphores write a program to synchronize the process such that multiple threads are able to read a shared variable at one time but only one thread is allowed to increment the shared variable. Implement the same using test case where one thread increments the values the other threads are not allowed to execute the read function and increment function.

Q6 A. WAP to create two threads. One will print the Fibonacci series and the other thread will find factorial of a number entered by the user.
B. WAP to demonstrate race condition between two processes

Q7 A. WAP to demonstrate the implementation of sequential file allocation.
B. Using pipes write a program to transfer message between two independent processes.
Q8 A. WAP to implement the demonstration of indexed file allocation.
B. WAP to implement the demonstration of Linked file allocation.

Q9 A. WAP which will copy all the data from one file to another file using system calls.
B. Write a program using system calls to create hierarchy of four processes i.e. process P having child P1 and process P1 having child P2 and process P2 having child P3 and P4. Use function getppid(),getpid() to know id's of the processes?

Q10 A. WAP to show cascading of processes.
B. WAP to create two threads. One will print the Fibonacci series and the other thread will find factorial of a number entered by the user.

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