10CS62

Sixth Semester B.E. Degree Examination, Jan./Feb. 2021
UNIX System Programming

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions, selecting at least TWO questions from each part.*

PART – A

1. a. What are the major difference between ANSI 'C' and K and R 'C'? Explain with an example. **(08 Marks)**
    b. What do you understand by the term feature test macros? List all the five features test macro along with their meanings. **(06 Marks)**
    c. What are the API common characteristics? List any five values of the global variable errno along with their meanings whenever API fails. **(06 Marks)**

2. a. What are the different types of files available in UNIX or POSIX system? Explain with an example. **(08 Marks)**
    b. What is the necessary of indoes in UNIX system V? **(05 Marks)**
    c. Define how UNIX Kernal that supports for files and explain them. **(07 Marks)**

3. a. Explain the following API's with prototypes.
       i) open   ii) ℓseek   iii) chown   iv) access. **(08 Marks)**
    b. Explain how fcntl API is used in file and record locking. **(06 Marks)**
    c. Explain C++ fstream class can be used to define objects that represent file system. **(06 Marks)**

4. a. Explain the memory layout of C program with a neat diagram. **(06 Marks)**
    b. With an example program, explain the use of setjmp and longjmp functions. **(08 Marks)**
    c. Describe the UNIX Kernal support for a process. Show the related data structure. **(06 Marks)**

PART - B

5. a. What is the difference between fork and vfork function? Explain with an example C/C++ program each. **(08 Marks)**
    b. What is race condition? Write a program in C/C++ to illustrate a race condition. **(06 Marks)**
    c. How UNIX operating system keeps process accounting? **(06 Marks)**

6. a. What is signals? Discuss any five POSIX defined signals. Explain how to setup a signal handler. **(10 Marks)**
    b. What is daemon? Briefly explain the coding rules. **(10 Marks)**

7. a. What is FIFO? Explain how it is used in IPC. Discuss with an example the client – server communication using FIFO's. **(10 Marks)**
    b. What are the different system calls available to create and manipulate semaphores? Explain them. **(10 Marks)**

8. Write short notes on the following :
    a. Shared memory
    b. Stream pipes
    c. Client–server connection function
    d. Network login. **(20 Marks)**

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