



USN

10CS62

Sixth Semester B.E. Degree Examination, July/August 2021
UNIX System Programming

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions.

- 1 a. What are the major differences between ANSI 'C' and K and R C? Explain with examples. (08 Marks)
b. List atleast four POSIX.1 feature test macro's with their meanings. Write a C/C++ program to demonstrate the same. (08 Marks)
c. Explain the meaning of following global error status codes defined in <error.h>:
(i) EINTR (ii) ENOMEM (iii) CHILD (iv) EFAULT (04 Marks)
- 2 a. Discuss different file types available in UNIX or POSIX system with commands that can be used to create file types. (10 Marks)
b. Explain Unix Kernel support for file manipulation which involves opening and closing of files. (10 Marks)
- 3 a. Assume a file file1 t x t of size 100 bytes exists in the system in the dir path/usr/work. Write a C/C++ program to read last 20 bytes from the file and display it to the standard console . (06 Marks)
b. Write a C/C++ program to ln-command. (04 Marks)
c. Discuss how file and record locking can be achieved with the help offcntl API. (10 Marks)
- 4 a. Write a C/C++ program to demonstrate the use of atexit function. (06 Marks)
b. Explain environment variables with an example program. (07 Marks)
c. Explain the memory layout of a C-program. (07 Marks)
- 5 a. What is fork and Vfork? Explain with an example program for each with appropriate comments wherever possible. (10 Marks)
b. Describe with a neat diagram, the sequence of processes involved in executing TELNET server. (06 Marks)
c. What is a session? Explain what happens if the calling process that creates a new session is not a process group leader. (04 Marks)
- 6 a. What are signals? List atleast four signals with their action. Demonstrate a signal handler with an example program. (07 Marks)
b. What are daemon processes? Discuss daemon characteristics and coding rules. (08 Marks)
c. Explain the Kill and alarm APIs. (05 Marks)
- 7 a. What are pipes? Write a C/C++ program to create a pipe from parent to child and send the data down the pipe. (07 Marks)
b. What are FIFOs? Explain with a neat diagram, the client-server communication using FIFOs. (07 Marks)
c. Explain the following message queue functions :
(i) msgget (ii) msgsnd (06 Marks)
- 8 a. Explain the socket programming functions with their prototypes:
(i) Socket (ii) Connect (iii) Listen (iv) Accept. (10 Marks)
b. Explain passing of file descriptors between processes with a neat diagram. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.