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10CS62

# Sixth Semester B.E. Degree Examination, Dec.2019/Jan.2020
# UNIX System Programming

Time: 3 hrs. Max. Marks:100

**Note:** ***Answer FIVE full questions, selecting atleast TWO questions from each part.***



## PART – A

1 a. ANSI C supports function pointer to be used without dereferencing? Justify. **(04 Marks)**

b. Discuss how to ensure an user program confirming to POSIX standard. Also write the structure of a POSIX program. **(06 Marks)**

c. Write POSIX complient C++ program to check the following runtime limits :
i) Max number of open files ii) max number of links iii) Max number of real time signals iv) Max number of characters in the filename. **(05 Marks)**

d. What is an API? Explain the differences between API and library function. **(05 Marks)**

2 a. What are the file attributes? Some attributes are constant list them, also some are modifiable mention the commands and APIs used for the same. **(08 Marks)**

b. Discuss the differences between ln, ln –s and CP commands with suitable examples. **(06 Marks)**

c. Explain the differences between file stream pointer and file descriptor. **(06 Marks)**

3 a. Write a note on the following APIs : i) access ii) stat/fstat. **(10 Marks)**

b. Write C++ program to emulate UNIX CP command to copy the contents of an existing file ab·txt to the file b·txt. **(04 Marks)**

c. What are locks? How to set/get advisory locks in UNIX? Explain the API used for the same. **(06 Marks)**

4 a. What is an exit handler? How to set the exit handlers? Explain with an example. **(06 Marks)**

b. What is an Env list? Explain the APIs used for modifying the environment list. **(08 Marks)**

c. Discuss non-local goto statements in ANSI C with suitable example. **(06 Marks)**

## PART – B

5 a. Explain the differences between fork( ) and exec( ) APIs. **(06 Marks)**

b. What is race condition? Write a program to avoid race condition, by allowing parent to execute first, also mention the different ways to avoid race condition. **(08 Marks)**

c. Write a note on process groups and session. **(06 Marks)**

6 a. What is signal mask? Explain also write a program using C++ to mask the signal SIGINT. **(08 Marks)**

b. What is a Interval timer? Explain briefly the different ways of setting the interval timers. **(06 Marks)**

c. With neat diagram explain the error loging facility. **(06 Marks)**

7 a. With suitable example explain popen( ) and pclose( ) functions. **(08 Marks)**

b. What is message queue? Explain the different APIs used for handling message queues. **(09 Marks)**

c. Explain the limitations of pipe. **(03 Marks)**

8 a. Explain the different APIs used for handling shared memory. **(10 Marks)**

b. Write a note on client-server connection functions. **(06 Marks)**

c. Explain stream pipes with suitable diagram. **(04 Marks)**

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