10CS62

Sixth Semester B.E. Degree Examination, June/July 2019
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. Bring out the major differences between ANSIC and K and R'C'. Explain each with examples. (08 Marks)

   b. Write a C/C++ program to check the following units :
     (i)   Clock ticks.
     (ii)   Maximum number of child process
     (iii)   Maximum path length.
     (iv)   Maximum file name.
     (v)   Maximum number of files can be opened. (08 Marks)

   c. Write any 4 error status codes and their meanings. (04 Marks)

2 a. Explain the different file types available in Unix or Posix systems. (10 Marks)

   b. Discuss with a neat diagram the different data structures supported by Unix Kernel for the file manipulation. (06 Marks)

   c. What are the differences between Handlink and Softlink with examples? (04 Marks)

3 a. Explain the following API's with their prototype definations and return values:
     (i) lseek (ii) fstat   (iii) link   (iv) fcntl   (v) access. (10 Marks)

   b. What are symbolic link file API's? Write a C/C++ program to emulate the unix in command. (10 Marks)

4 a. Explain briefly memory layout of C program. (08 Marks)

   b. Write a C/C++ program to demonstrate the use of –atexit( ). (08 Marks)

   c. Explain setrlimit and getrlimit with their prototypes. (04 Marks)

PART – B

5 a. What is zombic process? Write a C/C++ program to avoid zombic process by forking twice. (10 Marks)

   b. What is controlling terminal? Explain its characteristics and relation to session and process groups. (10 Marks)

6 a. What is signal? Explain with a program how to setup a signal handler. (08 Marks)

   b. Explain with suitable example kill function. (06 Marks)

   c. Discuss the daemon characteristics and coding rules. (06 Marks)

7 a. What do you mean by pipes? List out their limitations. Write a C/C++ program to send data from parent to child over pipe. (10 Marks)

   b. What is FIFO? Explain how it is used in IPC? Discuss with an example, the client server communication, using FIFO's. (10 Marks)

8   Write a short notes on:
   a. Race conditions.
   b. Semaphores.
   c. Message queues.
   d. Alarm and Pause functions. (20 Marks)

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