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RN-7365

B. E. - IV (Sem. VII) (Computer) Examination

May / June - 2010

UNIX Programming

Time : Hours]

[Total Marks : 100

Instruction :

नीचे दर्शावेक निशानीवाणी विगतो उत्तरवडी पर अवश्य लखवी.
Fillup strictly the details of signs on your answer book.

Name of the Examination :
B. E. - 4 (Sem. 7) (Computer)

Name of the Subject :
UNIX Programming

Subject Code No. : 7 3 6 5 Section No. (1, 2,.....): 1&2

Seat No. :
[][][][][][][]

Student's Signature

Section - I

Q – 1 (a) Attempt the following : [10]

1. Differentiate: stat, fstat and lstat functions of UNIX [3]
2. List out limitations of hard links. [2]
3. The field *gr_mem* of group structure is used as a double pointer (***gr_mem*).
Justify the statement. [2]
4. To delete an existing file; we do not need read/write permission for the file itself.
State true or false. [1]
5. In *fcntl (int filedes, int cmd, ... /* int arg */)*; the *cmd* value *F_GETFL* returns the file status flags for filedes as the value of the function. State true or false. [1]
6. Any bits that are on in the file mode creation mask are turned off in the file's mode while using *umask* function. State true or false. [1]

(b) Explain *open* function with all its modes and constants. Discuss file descriptors used by UNIX shell. [10]

Q-2

(a) Write a C Program to simulate *ls -l* command of UNIX. [8]

(b) Write a C program which lists all the files in a directory of UNIX. [8]

OR

(b) Explain *lseek* function. Write a C program to create a file with a hole in it using *lseek* function. [8]

Q-3 (a) Explain *dup* and *dup2* functions of UNIX. [5]

(b) Explain various time and date routines and its relationships. [5]

(c) Discuss various system data files in UNIX. [4]

OR

(c) Explain *stat* structure. [4]

Section - II

4 (a) Answer the following questions in short. [10]

- (1) What is advantage of using system function instead of fork and exec ?
- (2) What do you mean by Signal Mask?
- (3) Which function provides statistics on memory allocator ?
- (4) What is process ID of a swapper process?
- (5) Which process is invoked by kernel at the end of bootstrap procedure?
- (6) What is spawn?
- (7) Define zombie process.
- (8) When a process terminates normally or abnormally , which signal is sent by kernel to parent process?
- (9) What will happen if we write to a FIFO that no process has open for reading ?
- (10) System function is implemented by calling _____ , _____ and _____ functions.

(b) Draw the diagram which shows relationship between six exec functions. Explain exec functions in detail . Write a program to demonstrate use of exec function. [10]

5 (a) Explain memory Layout of a C Program in detail [7]

(b) List different properties of parent that are inherited by the child. Also list the differences between the parent and the child process. [8]

OR

(b) Explain different conditions which can generate a signal. Explain Different job control signals . [8]

6 (a) Explain following in detail:: [8]

- I] pipe
 - ii] FIFO
 - iii] semaphore
 - iv]shared memory.
- Also explain their use in IPC.

OR

(a) Explain Race condition in detail with example. Also mention the steps to avoid race condition. [8]

(b) explain canonical and noncanonical mode of input processing in detail. Also explain difference between both the modes. [7]