III B.Tech. II Semester Supplementary Examinations, January -2014
UNIX PROGRAMMING
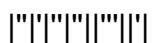(Common to Computer Science and Engineering and Information Technology)

Time: 3 Hours   **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks
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1. a). Draw and explain the architecture of unix operating system.
    b). Explain the following commands:
    i). join   ii). unlink   iii). finger   iv). uniq

2. a). Write a script logic that allows only jack and jill to execute a program, and only from the terminals tty05 and tty06.
    b). Give brief description about the here documents.

3. a). Discuss in detail about the various directory handling system calls.
    b). Distinguish between stat and fstat system calls.
    c). Explain getchar and putchar system calls.

4. a). What is a zombie process? Explain it in detail.
    b). Draw and explain the process structure.
    c). Explain the exit system call.

5. a). Explain the usefulness of the following signals
            i). sleep   ii). abort   iii). alarm
    b). Write short notes on interrupted system calls.

6. a). With the help of a neat sketch explain the inter process communication between two processes on different systems.
    b). List and explain the different system calls present in pipe.

7. a). Explain the logic flow for opening an IPC channel.
    b). List and explain the different system calls involved in message queues.

8. a). Draw and explain the address structure of XNS and Unix.
    b). Explain the bind and connect system calls.
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1. a). List and explain the various remote login commands with its syntax and example.
   b). Explain the different back up commands used in unix.

2. a). Write a script that displays in head style, the last three lines of each file in the current directory, duly preceded by the file name.
   b). Write a detailed note shell Meta characters.

3. a). Explain the following system calls in detail:
       i). symlink   ii). unlink   iii). chown   iv). Octl
   b). Give brief description about the low level file I/O.

4. a). Distinguish between fork and vfork.
   b). Discuss in detail about the exec function.
   c). Write short notes on process identifiers.

5. a). Explain the following signals:
       i). kill   ii) pause   iii). Raise
   b). Distinguish between reliable and unreliable signals.

6. a). What are the rules that should be followed while reading or writing data into a FIFO.
   b). Explain the importance of "mknod" in interprocess communication.
   c). Give brief description about the shell pipeline.

7. a). Explain, how to lock the files by using semaphores.
   b). When an IPC Channel is accessed, how it will be checked. Explain in detail.

8. a). Explain listen, accept, close and recvfrom system calls.
   b). Write short notes on address conversion routines.

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1. a). Explain the different disk utility commands with their syntax and example.
   b). Explain the importance of unmask command in unix.

2. a). Write a script that prompts for a string and then checks whether it has atleast 10 characters by using i) case ii) expr.
   b). Explain elif ladder with suitable example.

3. a). Explain the importance of dup command in unix and also explain the various forms of it with suitable example.
   b). Explain any three standard I/O function calls.

4. a). Explain the importance of forking in unix.
   b). Give brief description about the vfork page sharing.
   c). Write short notes on process address space.

5. a). Present a detailed note on interrupted system calls.
   b). Explain the alarm and pause functions.

6. a). What is meant by inter process communication? Explain the inter process communication between two processes on a single system.
   b). Discuss in detail about the importance of name spaces in inter process communication.

7. a). Explain the kernel data structure for semaphore set.
   b). List and explain the limitations of semaphores.

8. a). Present a detailed note on socket addresses.
   b). Explain socketpair, send, sendto, recv and connect system calls.
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Set No: 4

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1. a). Explain any five file handling utility commands with its syntax and example.
    b). Explain the different forms of grep command with suitable example.

2. a). Write a script that makes rm behave interactively whenever it is used with more than three file names.
    b). Write short notes on output redirections available in shell programming.

3. a). Draw and explain the unix file structure in detail.
    b). Explain the following system calls
        i). chmod   ii). chown   iii). unlink

4. a). Distinguish between wait and waitpid .
    b). Give brief description about process identifiers.
    c). What is a process? Explain the different states of process in detail.

5. a). Discuss in detail about the unreliable signals.
    b). Explain with suitable example, the kill and raise signals.

6. a). Explain the role of streams and messages in inter process communication.
    b). How can we achieve the bidirectional flow of data by using pipes. Explain it in detail.

7. a). How can we generate the IPC ids using fork. Explain opening or creating an IPC channel.
    b). Give brief description about multiplexing of messages.

8. Write short notes on the following:
            a). Byte Ordering Routines
            b). Address conversion routes
            c). Socket and socketpair system call
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