Code No: 09A51202   **R09**   **Set No. 2**

III B.Tech I Semester Examinations,December 2011
LINUX PROGRAMMING
Information Technology

Time: 3 hours   Max Marks: 75

Answer any FIVE Questions
All Questions carry equal marks
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1. Explain the following commands with syntax, options and examples:

    (a) head

    (b) tail

    (c) more

    (d) pg.   [15]

2. (a) What are the benefits of using multithreaded programming?

    (b) Explain the APIs used to specify the attributes for a thread.   [6+9]

3. Explain the sequence of steps to process various socket functions using TCP protocol.   [15]

4. (a) Differentiate between fork( ) and vfork( ).

    (b) Write the syntax of six versions of exec functions and also explain how these functions differ from each other.   [7+8]

5. Compare the IPC functionality provided by pipes and message queues. What are the advantages and drawbacks of each? Explain briefly.   [15]

6. Differentiate between the following terms:

    (a) getc( ) Vs fgetc( )

    (b) stat( ) Vs fsat( )

    (c) printf( ) Vs fprint( )

    (d) scanf( ) Vs fscanf( ).   [15]

7. (a) Differentiate between different types of shells available in UNIX.

    (b) Write a shell script to implement background process that will continually print current time in upper right corner of the screen, while user can do his/her normal job at prompt.   [7+8]

8. Explain with a program how to copy file data from server to client using shared memory.   [15]

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Code No: 09A51202 | **R09** | **Set No. 4**

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Time: 3 hours   Max Marks: 75

Answer any FIVE Questions
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1. Explain briefly about the following socket APIs with clear syntax:

    (a) socket( )

    (b) bind( )

    (c) listen( )

    (d) accept( ).   [15]

2. Write a program and explain how to transfer a large amount of data between two processes using:

    (a) Pipes

    (b) Message queues.   [7+8]

3. Explain the kernel data structure for shared memory with a neat diagram. Also explain the APIs associated for creating and destroying a shared memory.   [15]

4. What are reliable signals? Explain about the primary features of reliable functions. Illustrate an example program for handling reliable signals.   [15]

5. (a) Differentiate between shell variables and environment variables and user defined variables.

    (b) Write a short note on I/O Redirection operators.   [9+6]

6. (a) Briefly explain about stream errors.

    (b) Write and explain a function that sets one or more of the file status flags for a descriptor.   [6+9]

7. What is Deadlock? Explain the situation when will the mutex lock creates a deadlock condition within a process and also give the solution to prevent such deadlock condition.   [15]

8. (a) Develop an AWT program to summarize from the list of all processes, a count of processes run by every user (including root).

    (b) Give the reason why Linux commands are divided into internal and external commands.   [7+8]

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Code No: 09A51202 | **R09** | **Set No. 1**

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Time: 3 hours | Max Marks: 75
Answer any FIVE Questions
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1. (a) Explain the significance of single quote and double quote.
   (b) What does the shell do with the meta characters if it finds in the command line?
   (c) Write a shell script to find the factorial of a number. [4+4+7]

2. (a) Discuss the data structures that support the unix files in detail.
   (b) How a file can be described in Unix environment? List and explain about the various types of files in Unix. [7+8]

3. (a) What are the merits and demerits of multithreaded programming?
   (b) Explain the relationships of threads, LWPs and hardware processes with the help of a neat diagram. [6+9]

4. (a) What are process identifiers? Mention the commands for getting different IDs of calling process.
   (b) Write a program that demonstrates the use of exit( ). [7+8]

5. (a) Explain how can we make the AWK to respond case insensitive to case.
   (b) Suppose we create a phone directory of friends with family name, first name and phone number on each line. How shall we use AWK to determine which is the most commonly occurring family name in our phone directory? [7+8]

6. Describe all the elementary socket functions required to write a complete TCP client and server application. [15]

7. (a) What are the security problems associated with system V IPC mechanisms?
   (b) Write a program to illustrate client/server application using named pipes. [7+8]

8. Write a program to create and open a shared memory segment and fill it with a pattern by one process and verify the same data pattern in the shared memory segment by another process. Explain the process. [15]

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Code No: 09A51202

| R09 | | Set No. 3 |

III B.Tech I Semester Examinations,December 2011
LINUX PROGRAMMING
Information Technology

Time: 3 hours
Max Marks: 75

Answer any FIVE Questions
All Questions carry equal marks
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1. (a) Explain similarities and dissimilarities between the semaphore and shared memory IPC Mechanisms.

   (b) Write and explain a program to transfer large amount of data between two unrelated processes using shared memory. [7+8]

2. (a) Differentiate between the three stat functions with examples.

   (b) Write a program to print the type of a file for each command line argument. [7+8]

3. Discuss about various file handling utilities available in LINUX. Quote various options and examples for each. [15]

4. (a) Describe any four built in variables in Shell and demonstrate their use giving an example for each.

   (b) Write a shell script to display GUD MRNG, GUD AFTERNOON, GUD NIGHT based on system time whenever user logs on. [7+8]

5. (a) Differentiate between real IDs and effective IDs.

   (b) What is need of exec( ) system call? Write syntax.

   (c) Write a C program to illustrate exec( ) function. [4+5+6]

6. What is meant by a coprocess? Illustrate the coprocess example by taking a simple filter to convert uppercase characters to lower case letters using popen( ) and pclose( ). [15]

7. Explain a stream socket with a illustrative example for client/server program. [15]

8. (a) Why do each lightweight process need a separate kernel stack?

   (b) Describe the problems with single threaded programming and how it is overcome by multithreaded programming. [6+9]

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