INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)
Dundigal, Hyderabad -500 043

COMPUTER SCIENCE AND ENGINEERING

TUTORIAL QUESTION BANK

Course Title	LINUX PROGRAMMING				
Course Code	ACS010				
Programme	B.Tech				
Semester	VI	CSE			
Course Type	Core				
Regulation	IARE - R16				
Course Structure		**Theory**			**Practical**	
		Lectures	Tutorials	Credits	Laboratory	Credits
		3	1	4	3	2
Chief Coordinator	Ms. K Radhika, Assistant Professor, CSE				
Course Faculty	Ms. G Sulakshana, Assistant Professor, CSE Mr. P Anjaiah, Assistant Professor, CSE Ms. N M Deepika, Assistant Professor, CSE				

COURSE OBJECTIVES :

The course should enable the students to:	
I	Interpret the Linux utilities to control the resources.
II	Learn basic concepts of shell scripts and file structures.
III	Understand the concepts of process creation and interruption for multitasking applications.
IV	Explore memory allocation and inter process communication methods.
V	Provide support for distributed and network applications in Linux environment.

COURSE OUTCOMES (COs):

CO 1	Understand the basic commands of Linux operating system and Demonstrate Sed and awk scripting.
CO 2	Demonstrate shell scripts and understand creation of file systems and directories and operate them.
CO 3	Synthesis creation of background and fore ground processes management through system calls and Generalize signal functions to handle interrupts by using system calls.
CO 4	Demonstrate inter process communication using shared memory segments, pipes ,message queues
CO 5	Demonstrate various client server applications using TCP or UDP protocols.

COURSE LEARNING OUTCOMES

ACS010.01	Learn the importance of Linux architecture along with features.
ACS010.02	Identify and use Linux utilities to create and manage simple file processing operations
ACS010.03	Apply the security features on file access permissions by restricting the ownership using advance Linux commands.
ACS010.04	Implement the SED Scripts, operation, addresses, and commands.
ACS010.05	Implement the GREP and AWK commands for pattern matching and mathematical functions.
ACS010.06	Understand the shell responsibilities of different types of shells
ACS010.07	Develop shell scripts to perform more complex tasks in shell programming environment.
ACS010.08	Illustrate file processing operations such as standard I/O and formatted I/O.
ACS010.09	Illustrate directory operations such as standard I/O and formatted I/O.
ACS010.10	Understand process structure, scheduling and management through system calls.
ACS010.11	Generalize signal functions to handle interrupts by using system calls.
ACS010.12	Illustrate memory management of file handling through file/region lock
ACS010.13	Design and implement inter process communication (IPC) in client server environment by using pipe.
ACS010.14	Design and implement inter process communication (IPC) in client server environment by using named Pipes and message queues.
ACS010.15	Illustrate client server authenticated communication in IPC through message queues, semaphores
ACS010.16	Illustrate client server authenticated communication in IPC through shared memory.
ACS010.17	Demonstrate socket connections, socket attributes, socket addresses.
ACS010.18	Demonstrate various client server applications on network using TCP.
ACS010.19	Demonstrate various client server applications on network using UDP protocols.
ACS010.20	Design custom based network applications using the sockets interface in heterogeneous platforms

TUTORIAL QUESTION BANK

	UNIT- I			
	INTRODUCTION TO LINUX UTILITIES			
	Part - A (Short Answer Questions)			
S No	**QUESTIONS**	**Blooms Taxonomy Level**	**Course Outcomes**	**Course Learning Outcomes (CLOs)**
1.	State kernel role in Linux?	Remember	CO 1	ACS010.01
2.	List different types of shells in Linux	Understand	CO 1	ACS010.01
3.	Describe compressing of files in Linux.	Remember	CO 1	ACS010.02
4.	Find the list of files in a directory along with file attributes.	Understand	CO 1	ACS010.02
5.	Illustrate the vi editor text editing commands?	Remember	CO 1	ACS010.01
6.	Define hard link and soft link of a file.	Understand	CO 1	ACS010.02
7.	Compare CP and MV commands.	Understand	CO 1	ACS010.02
8.	Illustrate moving of files in Linux environment with examples?	Remember	CO 1	ACS010.02
9.	What is rlogin command purpose?	Remember	CO 1	ACS010.02
10.	Give the use of telnet command with example?	Remember	CO 1	ACS010.03
11.	What is ftp and its importance in Unix?	Understand	CO 1	ACS010.03
12.	Differentiate tar and zip/unzip commands?	Remember	CO 1	ACS010.03
13.	How to create a file hierarchy using single command in Linux?	Remember	CO 1	ACS010.04
14.	Define Sed script?	Remember	CO 1	ACS010.05
15.	Define Awk script?	Remember	CO 1	ACS010.05
16.	Write the Syntax of Awk Command	Remember	CO 1	ACS010.05
17.	How to create a new directory in a specific disc location in Linux with example?	Understand	CO 1	ACS010.03
18.	List the errors while deleting a directory with suitable examples.	Remember	CO 1	ACS010.03
19.	List Awk operations and describe programming constructs	Understand	CO 1	ACS010.05
20.	Write a command to print the squares of numbers from 1 to 10 using Awk command	Understand	CO 1	ACS010.05
21.	Write a command to print the line number before each line?	Understand	CO 1	ACS010.05
22.	Explain the Syntax of Sed Command	Understand	CO 1	ACS010.04
23.	How to replace word 'complexsql' with word 'Amit'	Understand	CO 1	ACS010.04
24.	Write a command to delete first line and last line from Sed_file.txt	Understand	CO 1	ACS010.05
	Part - B (Long Answer Questions)			
1.	Explain Layered architecture and kernel role in Linux with neat Diagram?	Understand	CO 1	ACS010.01
2.	Compare the comm., comp and diff text processing utilities.	Understand	CO 1	ACS010.02
3.	Illustrate the file filter commands with examples	Remember	CO 1	ACS010.02
4.	Write about links of files and describe about kernel role while creating links.	Understand	CO 1	ACS010.02
5.	Describe the issues with creating, copying, moving and deleting the directory file in Linux with examples.	Remember	CO 1	ACS010.02
6.	Discuss list of commands in sed.	Remember	CO 1	ACS010.04
7.	Differentiate stream editor and line editor	Understand	CO 1	ACS010.04
8.	How to create background job and foreground jobs in Linux?	Understand	CO 1	ACS010.02
9.	Explain about ulimit and, mount commands? Illustrate pg and more command with example?	Remember	CO 1	ACS010.03
10.	Distinguish between user Defined variables and environment Variables with example?	Understand	CO 1	ACS010.05
11.	Write a AWK command to find the total number of lines in a file without using NR	Understand	CO 1	ACS010.05

12.	Write a AWK command to print the second and third line of a file without using NR	Understand	CO 1	ACS010.05
13.	How to remove blank lines in specific file by using Sed Command?	Understand	CO 1	ACS010.04
14.	How to print only blank line using Sed Command?	Understand	CO 1	ACS010.04
15.	Write a Sed command to delete word complexsql from the file.	Remember	CO 1	ACS010.04
16.	How to print first and last line of the file using Sed Command?	Understand	CO 1	ACS010.04
17.	Write a Sed command to display 3rd and 5th line from specific file.	Understand	CO 1	ACS010.04
18.	Write a Sed command to remove the first 10 lines from a file?	Understand	CO 1	ACS010.04
19.	Write a Sed command to duplicate empty lines in a file?	Understand	CO 1	ACS010.04
20.	Explain Moving processes to the background and foreground with an example?	Understand	CO 1	ACS010.02
Part - C (Problem Solving and Critical Thinking Questions)
1.	Differentiate windows and Linux operating system and analyze Important system calls?	Remember	CO 1	ACS010.01
2.	Illustrate security concepts in both Linux and windows os?	Understand	CO 1	ACS010.03
3.	Write a AWK command to print the third field of each line. In the text file, some lines are delimited by colon and some are delimited by space.	Understand	CO 1	ACS010.05
4.	Write a command to find the sum of bytes (size of file) of all files in a directory.	Understand	CO 1	ACS010.04
5.	Write a AWK command to print the fields in a text file in reverse order?	Understand	CO 1	ACS010.04
6.	Write a sed command to print the lines that do not contain the word "complex"?	Understand	CO 1	ACS010.04
7.	Write an AWK script to find the number of characters, words and lines in a file.	Understand	CO 1	ACS010.05
UNIT-II
WORKING WITH THE BOURNE AGAIN SHELL (BASH
Part – A (Short Answer Questions)
1.	Write a script to print the first 10 elements of Fibonacci series	Remember	CO 2	ACS010.07
2.	Describe any four built in variables in Shell and Demonstrate their usage by example?	Understand	CO 2	ACS010.06
3.	Write a shell script to display GOOD MRNG, GOOD AFTERNOON, GOOD NIGHT based on system time whenever user logs on.	Remember	CO 2	ACS010.07
4.	What is the use of here documents?	Remember	CO 2	ACS010.06
5.	What is Shell Scripting?	Remember	CO 2	ACS010.06
6.	List some of the common and most widely used UNIX commands.	Remember	CO 2	ACS010.06
7.	What are the different Types of Shells available?	Remember	CO 2	ACS010.06
8.	Differentiate symlink ( ) and link() functions with example?	Understand	CO 2	ACS010.08
9.	Define system call?	Understand	CO 2	ACS010.08
10.	List the file types supported by linux.	Understand	CO 2	ACS010.08
11.	Differentiate system call with library function?	Remember	CO 2	ACS010.08
12.	Compare dot and dot dot notations in the file system?	Remember	CO 2	ACS010.08
13.	Distinguish relative path and absolute path.	Understand	CO 2	ACS010.08
14.	Differentiate hard link and soft link	Remember	CO 2	ACS010.08
15.	List the significance of fcntl arguments	Understand	CO 2	ACS010.08
16.	List the file API system calls with purpose	Remember	CO 2	ACS010.08
17.	Give the list of directory API functions	Understand	CO 2	ACS010.09
18.	Write the syntax for "if" conditionals in Linux?	Understand	CO 2	ACS010.07
19.	Discuss three standard streams in Linux	Remember	CO 2	ACS010.07

20.	Write a command to display PID of current shell.	Understand	CO 2	ACS010.07
21.	How are shell variables stored? Explain with a simple example.	Remember	CO 2	ACS010.07
22.	What are positional parameters? Explain with an example.	Remember	CO 2	ACS010.07
<td colspan="5" align="center">**Part - B (Long Answer Questions)**</td>				
1	Write a program to create, read and write the contents of directory File Using directory API.	Remember	CO 2	ACS010.07
2	Describe about I/O Redirection operations, built in variables in Shell.	Understand	CO 2	ACS010.07
3	Explain by writing a script using system time, toshow GOOD Morning, GOOD AFTERNOON, GOODNIGHT.	Understand	CO 2	ACS010.07
4	Explain by writing shell script that receives any number of file names as arguments checks if every argument supplied is a file or a directory?	Understand	CO 2	ACS010.07
5	Explain how the shell treat a command line passed to it.	Understand	CO 2	ACS010.07
6	Write a shell script to find and delete all file with the word "Unix".	Understand	CO 2	ACS010.07
7	Write a shell script to count the specified number of lines in a text file without using wc command?	Understand	CO 2	ACS010.07
8.	Demonstrate by writing a shell script to find the factorial of a number.	Understand	CO 2	ACS010.07
9.	Explain about symlink ( ) function with example? Explain about link( )function with example?	Understand	CO 2	ACS010.08
10.	Write a program to create, read and write the contents of Ordinary file using file API.	Remember	CO 2	ACS010.08
11.	Explain about unlink ( ) functions with example? Explain about symlink ( ) functions with example?	Remember	CO 2	ACS010.08
12.	Define a system call? Differentiate system call with library Function?	Remember	CO 2	ACS010.08
13.	Explain about dot and dot dot directories in the file system?	Understand	CO 2	ACS010.08
14.	Define symbolic link? Hard link with examples?	Understand	CO 2	ACS010.08
15.	Differentiate symbolic link instead of a hard link.	Understand	CO 2	ACS010.08
16.	Define fcntl ( ), read (), write () writen () function with examples?	Understand	CO 2	ACS010.08
17.	Describe the characteristics of Unix File System.	Understand	CO 2	ACS010.08
18.	Describe about Low Level File I/O System Calls.	Understand	CO 2	ACS010.08
19.	Describe usage of dup(), dup2() system calls with example?	Understand	CO 2	ACS010.09
20.	Define stat () and create () function with examples?	Understand	CO 2	ACS010.08
21.	Describe open ( ) function in Linux with examples?	Understand	CO 2	ACS010.08
22.	Differentiate stat ( ), fstat ( ) and lstat() with example?	Understand	CO 2	ACS010.08
23.	Illustrate about redirection of standard output to file abc.txt	Understand	CO 2	ACS010.08
<td colspan="5" align="center">**Part - C (Problem Solving and Critical Thinking Questions)**</td>				
1.	Differentiate file API and standard library functions for file Operations.	Understand	CO 2	ACS010.08
2.	Emulate the ls command using file API	Understand	CO 2	ACS010.08
3.	What does the. (dot) indicate at the beginning of a file name and how should it be listed?	Understand	CO 2	ACS010.08
4.	What are the different blocks of a file system? Explain in brief.	Understand	CO 2	ACS010.08
5.	Illustrate to read input from the standard input (stdin) and display on the standard output (stdout) using file API.	Understand	CO 2	ACS010.08
6.	Differentiate and analyze different file creation api functions with example	Understand	CO 2	ACS010.08
7.	List and briefly describe the functionalities of standard i/o library.	Understand	CO 2	ACS010.08
<td colspan="5" align="center">**UNIT -III**</td>				
<td colspan="5" align="center">**PROCESS AND SIGNALS**</td>				
<td colspan="5" align="center">**Part - A (Short Answer Questions)**</td>				
1.	What is a process in unix?	Remember	CO 3	ACS010.10

2.	State process states in unix/	Remember	CO 3	ACS010.10
3.	Write about the kernel role on process management	Remember	CO 3	ACS010.10
4.	List the process attributes	Remember	CO 3	ACS010.10
5.	Give 5 examples of reliable signals.	Remember	CO 3	ACS010.10
6.	Describe orphan process with example?	Remember	CO 3	ACS010.10
7.	What is fork() with example?	Understand	CO 3	ACS010.10
8.	Define zombie processes with example?	Remember	CO 3	ACS010.10
9.	Write the differences between threads and processes.	Understand	CO 3	ACS010.10
10.	Explain process ID of init process?	Understand	CO 3	ACS010.10
11.	How can you get/set an environment variable from a program?	Understand	CO 3	ACS010.10
12.	What Is An Advantage Of Executing A Process In Background?	Understand	CO 3	ACS010.10
13.	What Happens When You Execute A Program?	Understand	CO 3	ACS010.10
14.	What is "ps" Command For?	Understand	CO 3	ACS010.10
15.	Differentiate fork() and vfork() with example?	Remember	CO 3	ACS010.11
16.	Describe exec () with example?	Remember	CO 3	ACS010.11
17.	Illustrate exit ( ) function?	Understand	CO 3	ACS010.11
18.	List all flavors of excec() function.	Understand	CO 3	ACS010.11
19.	Define zombie processes with example?	Understand	CO 3	ACS010.11
20.	Illustrate calloc( ) and malloc( ) functions?	Understand	CO 3	ACS010.11
17.	Define signal? and explain some examples?	Understand	CO 3	ACS010.11
18.	Distinguish between alarm(), sleep(), pause() functions?	Understand	CO 3	ACS010.11
19.	Write the difference between reliable and unreliable signals.	Understand	CO 3	ACS010.11
20.	Explain how to handle signal?	Understand	CO 3	ACS010.11
Part – B (Long Answer Questions)				
1.	Illustrate about child process creation using fork(), vfork() and Exec()	Remember	CO 3	ACS010.10
2.	Discuss about orphan process and zombie process with example?	Remember	CO 3	ACS010.10
3.	What is a Daemon? and Describe Some of the most common daemons	Remember	CO 3	ACS010.10
4.	How can a parent and child process communicate?	Remember	CO 3	ACS010.10
5.	What is process table and describe the Process States In Unix?	Remember	CO 3	ACS010.10
6.	List The System Calls Used For Process Management:	Remember	CO 3	ACS010.10
7.	How will you run a process in background? How will you bring that into foreground and how will you kill that process?	Understand	CO 3	ACS010.10
8.	Explain how to terminate process normally or abnormally?	Remember	CO 3	ACS010.10
9.	Differentiate wait () and waitpid() with examples?	Understand	CO 3	ACS010.11
10.	Explain the mechanism for handling a signal with example?	Understand	CO 3	ACS010.11
11.	How many ways a process goes to wait state or termination state forcefully?	Understand	CO 3	ACS010.11
12.	Describe SIGKILL and SIGINT with examples?	Understand	CO 3	ACS010.11
13.	Explain about signal () function? Differentiate the reliable and unreliable signals	Understand	CO 3	ACS010.11
14.	Elaborate different versions of exec () with examples?	Understand	CO 3	ACS010.11
15.	Write about the kill and raise functions.	Remember	CO 3	ACS010.11
16.	Define signal and explain signal system calls?	Remember	CO 3	ACS010.11
16.	How linux kernel provides support for 'signals' and write about kill, raise, alarm, pause, abort and sleep functions used in linux signals	Understand	CO 3	ACS010.11
Part – C (Problem Solving and Critical Thinking)				
1.	Differentiate and analyze non-blocking IO operations in both Windows and Linux operating systems?	Understand	CO 3	ACS010.10

2.	Write a program to create a child process and get the processed of child and parent	Understand	CO 3	ACS010.10
3.	Write a program to find sum of odd numbers by child process and even numbers by parent process.	Remember	CO 3	ACS010.10
4.	Illustrate to redirect the standard input (stdin) and the standard output (stdout) of a process, so that scanf () reads from the pipe and printf ()writes into the pipe?	Remember	CO 3	ACS010.11
5.	Illustrate by writing c program where process forks to a child, then Waits for someone to terminate?	Understand	CO 3	ACS010.11
6.	What is an orphan process? Write a program to illustrate orphan process.	Understand	CO 3	ACS010.11
7.	How to prevent an orphan processes in linux? Demonstrate a program to create process and to check orphan process.	Understand	CO 3	ACS010.11
8.	What is linux process status (ps) and explain the procedures for process creation, replacing a process image, waiting for a process, process termination.	Understand	CO 3	ACS010.11

UNIT -IV				
DATA MANAGEMENT AND INTER PROCESS COMMUNICATION				
Part – A (Short Answer Questions)				
1.	What is Inter process communication?	Remember	CO 4	ACS010.13
2.	List the different mechanisms for inter process communication.	Remember	CO 4	ACS010.13
3.	Describe FIFO concept with example?	Remember	CO 4	ACS010.14
4.	What is the use of FIFO comparing with pipe?	Remember	CO 4	ACS010.14
5.	Describe mkfifo() system call by example?	Remember	CO 4	ACS010.14
6.	Describe Pipes opening concept with example?	Remember	CO 4	ACS010.13
7.	Describe pipes? Explain their limitations.	Understand	CO 4	ACS010.13
8.	List the message API system calls to create, delete, send and receive	Remember	CO 4	ACS010.14
9.	Describe the structure of a message	Remember	CO 4	ACS010.14
10.	Illustrate about IPC_EXEC?	Understand	CO 4	ACS010.13
11.	Differentiate pipe and FIFO pipe?	Remember	CO 4	ACS010.13
12.	What is named pipe?	Understand	CO 4	ACS010.14
13.	Explain about msgtyp with example?	Remember	CO 4	ACS010.14
14.	Describe IPC _PRIVATE with example?	Remember	CO 4	ACS010.14
15.	Describe pipe () system call?	Remember	CO 4	ACS010.13
16.	List the POSIX APIs of semaphores.	Remember	CO 4	ACS010.15
17.	Define semaphore and its functionalities?	Understand	CO 4	ACS010.15
19.	Define shared memory and its functionalities?	Understand	CO 4	ACS010.16
20.	Define message queue and list its system calls?	Understand	CO 4	ACS010.14
Part – B (Long Answer Questions)				
1.	Describe message queue API with syntax and example?	Remember	CO 4	ACS010.14
2.	Differentiate pipe and named pipe concepts in IPC process.	Understand	CO 4	ACS010.14
3.	Create a pipe to redirect the input of one command to other Command.	Remember	CO 4	ACS010.13
4.	Create a FIFO to build the communication channel between two processes and give the advantages and disadvantages of Files.	Remember	CO 4	ACS010.14
5.	Illustrate pipes? Explain their limitations. Explain how named pipes are replaced to overcome the drawback of pipe in IPC with an example?	Understand	CO 4	ACS010.13
6.	Illustrate about V IPC semaphore mechanism with example.	Remember	CO 4	ACS010.15
7.	Define Semaphore? Write about Semaphore system calls?	Remember	CO 4	ACS010.15
8.	Write about file locking with Semaphores?	Understand	CO 4	ACS010.15

9.	Explain about synchronization and How synchronization is Achieved with Semaphores?	Remember	CO 4	ACS010.15
10.	Explain about a shared memory and kernel data structure with a neat diagram?	Understand	CO 4	ACS010.16
11.	Explain about memory management functions malloc(), calloc(), realloc(), free() with suitable example.	Remember	CO 4	ACS010.12
12.	Define Shared memory? Write about Shared memory system calls?	Understand	CO 4	ACS010.16
13.	Describe message queue, semaphore, shared memory briefly and list its system calls?	Understand	CO 4	ACS010.13
14.	Write a c program to create a message queue with read and write permissions to write 3 messages to it with different priority numbers.	Understand	CO 4	ACS010.14
15.	List and explain the various system calls that are associated with semaphores.	Understand	CO 4	ACS010.15
16.	What is pipe? What are the differences between named and unnamed pipes?	Understand	CO 4	ACS010.13
<td colspan="5" align="center">**Part – C (Problem Solving and Critical Thinking)**</td>
1.	Demonstrate the priority message queues with example using Message Queue API	Understand	CO 4	ACS010.14
2.	Illustrate to displays no of messages in queue, last message send, Last?	Remember	CO 4	ACS010.14
3.	Demonstrate message read time in a given message queue.	Remember	CO 4	ACS010.14
4.	Demonstrate race conditions with shared memory?	Understand	CO 4	ACS010.16
5.	Write a c program to send and receive message using pipes. implement two way communication using pipes.	Remember	CO 4	ACS010.13
6.	Compare the IPC functionality provided by message queues and FIFOs. What are the advantages and drawbacks of each? Explain briefly.	Understand	CO 4	ACS010.14
7.	Write a program that uses a pipe to allow the parent process to read a message from its child.	Understand	CO 4	ACS010.13
<td colspan="5" align="center">**UNIT -V**</td>
<td colspan="5" align="center">**SOCKETS**</td>
<td colspan="5" align="center">**Part - A (Short Answer Questions)**</td>
1.	Describe connect() function in Linux?	Understand	CO 5	ACS010.18
2.	Describe socket( ) function in Linux?	Remember	CO 5	ACS010.18
3.	Describe accept( ) function in Linux?	Understand	CO 5	ACS010.18
4.	Describe bind( ) function in Linux?	Understand	CO 5	ACS010.18
5.	Describe read() function in Linux?	Remember	CO 5	ACS010.18
6.	Draw the structure of TCP/IP protocol	Understand	CO 5	ACS010.18
7.	List the attributes in socket address functions	Remember	CO 5	ACS010.18
8.	Distinguish between IPV4 and IPV6.	Understand	CO 5	ACS010.18
9.	Describe write() function in Linux?	Understand	CO 5	ACS010.18
10.	Describe listen() function in Linux?	Understand	CO 5	ACS010.18
11.	Differentiate stream sockets and raw sockets?	Remember	CO 5	ACS010.18
12.	List UDP system calls?	Understand	CO 5	ACS010.19
13.	Describe close() function in Linux?	Understand	CO 5	ACS010.18
14.	Draw the structure of TCP/IP for exchange information between client and server.	Understand	CO 5	ACS010.18
15.	Draw the structure of UDP protocol?	Understand	CO 5	ACS010.19
16.	Define socket in networking?	Remember	CO 5	ACS010.18
17.	List types of Transport layer protocols?	Remember	CO 5	ACS010.18
18.	List functions of TCP Protocol?	Remember	CO 5	ACS010.18
19.	List Functions of UDP Protocol?	Remember	CO 5	ACS010.19

	Part - B (Long Answer Questions)			
1.	Explain TCP socket connection Termination with a neat diagram?	Understand	CO 5	ACS010.18
2.	Differentiate TCP and UDP protocols?	Understand	CO 5	ACS010.18
3.	What is socket? Explain socket system calls for connectionless protocol.	Remember	CO 5	ACS010.18
4.	Write a C socket program for linux with a server and client example code.	Understand	CO 5	ACS010.18
5.	Explain all byte ordering functions with syntax?	Understand	CO 5	ACS010.18
6.	Explain TCP socket connection establishment with a neat diagram?	Remember	CO 5	ACS010.18
7.	Explain UCP data transfer with a neat diagram?	Understand	CO 5	ACS010.18
8.	Demonstrate client and server programming using TCP protocol with Neat diagram?	Understand	CO 5	ACS010.18
9.	Explain about socket () , listen(), accept( )system calls in Linux?	Remember	CO 5	ACS010.18
10.	Illustrate about bind (), read(), write() functions in Linux?	Understand	CO 5	ACS010.18
11.	Explain about sendto () and recvfrom () functions in Linux?	Understand	CO 5	ACS010.18
12.	Illustrate about TCP NODELAY syntax with a small program?	Understand	CO 5	ACS010.18
13.	Explain all byte manipulation functions with syntax?	Understand	CO 5	ACS010.18
14.	Explain about how TCP connections are established and terminated.	Understand	CO 5	ACS010.18
15.	Demonstrate echo server and echo client using 6666 port in TCP style?	Understand	CO 5	ACS010.18
16.	Explain the usage of stream sockets using client-server message handling example.	Understand	CO 5	ACS010.18
17.	Explain with a program to reverse a string from server to client using TCP?	Understand	CO 5	ACS010.18
	Part – C (Problem Solving and Critical Thinking)			
1.	Illustrate by writing a c program to implement UDP chat client server?	Understand	CO 5	ACS010.19
2.	Demonstrate client and server programming using UDP protocol with Neat diagram?	Remember	CO 5	ACS010.19
3.	Illustrate by writing a c program to implement TCP chat client server?	Understand	CO 5	ACS010.18
4.	Differentiate stream sockets and raw sockets and related system calls?	Remember	CO 5	ACS010.18
5.	Explain how small and big packets handled in transferring client Server Environment?	Understand	CO 5	ACS010.18
6.	Demonstrate echo client and server programming using TCP?	Understand	CO 5	ACS010.20
7.	Demonstrate client and server programming using TCP to send "hello" to server?	Understand	CO 5	ACS010.20

Prepared by:
Ms. K Radhika, Assistant Professor

HOD, CSE