Course Code: 20MC9122 **R20**

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
Siddharth Nagar, Narayanavanam Road – 517583
QUESTION BANK (DESCRIPTIVE)

Subject with Code: Linux Programming (20MC9122) **Course & Branch**: MCA

Regulation: R20 **Year & Sem:** II-MCA & I-Sem

UNIT –I

LINUX UTILITIES & WORKING WITH BASH

1	**a)**	Briefly explain Linux with its Architecture and Features.	[L2][CO1]	**[6M]**
	b)	Differentiate Linux and Unix with various categories.	[L4][CO1]	**[6M]**
2	**a)**	Identify various Linux file handling utilities with example.	[L3][CO3]	**[6M]**
	b)	List some Linux commands on directory utilities with examples.	[L1][CO3]	**[6M]**
3	**a)**	Explain Text processing utilities with suitable examples	[L2][CO2]	**[6M]**
	b)	What are the various process and disk utilities?	[L1][CO1]	**[6M]**
4	**a)**	Explain various file permissions in Linux.	[L2][CO3]	**[6M]**
	b)	List and explain various networking commands.	[L1][CO1]	**[6M]**
5	**a)**	Discuss in detail about AWK with its execution.	[L2][CO3]	**[6M]**
	b)	Demonstrate a shell script to delete duplicate files in the directory.	[L2][CO1]	**[6M]**
6	**a)**	Explain in detail about sed with examples.	[L2][CO1]	**[6M]**
	b)	Write short notes on here documents.	[L1][CO2]	**[6M]**
7		Design a bash script to read file line by line.	[L6][CO3]	**[12M]**
8		Choose various control structures of shell in linux with example.	[L5][CO2]	**[12M]**
9	**a)**	Define shell. Describe the responsibilities of a shell.	[L1][CO4]	**[6M]**
	b)	Design a shell script to find the factorial of a given number.	[L6][CO4]	**[6M]**
10	**a)**	Write a short note on input and output redirections.	[L1][CO1]	**[6M]**
	b)	Design a shell script to reverse given number and string.	[L6][CO4]	**[6M]**

Course Code: 20MC9122 **R20**

UNIT –II
LINUX FILES

1	**a)**	Sketch the structure of a file system in linux.	[L3][CO3]	**[6M]**
	b)	Explain different types of files in linux.	[L2][CO3]	**[6M]**
2	**a)**	Define inode and discuss various file types used in linux.	[L2][CO3]	**[6M]**
	b)	Write short notes on Low level file access	[L1][CO3]	**[6M]**
3		Analyze various standard I/O library Functions in linux.	[L4][CO3]	**[12M]**
4		Compare various file system calls with an example.	[L5][CO3]	**[12M]**
5		Explain the following i) fseek ii) fgetc iii) getc iv) fputc v) putc	[L2][CO3]	**[12M]**
6		Illustrate and compare hard link and soft link in file management.	[L3][CO3]	**[12M]**
7		Explain the following system calls i) fcntl ii) read iii) write iv) lseek	[L2][CO3]	**[12M]**
8		Describe the following in detail i) Record locking ii) System calls iii) File descriptors.	[L2][CO3]	**[12M]**
9		Give examples for file and directory management commands in detail.	[L2][CO3]	**[12M]**
10		Classify various scanning directories in linux with examples.	[L4][CO3]	**[12M]**

Course Code: 20MC9122 **R20**

UNIT –III

LINUX PROCESS & SIGNALS

1	**a)**	Define Process. Explain the process states in linux with a neat diagram.	[L2][CO5]	**[6M]**
	b)	List and discuss any three system calls for process management.	[L2][CO5]	**[6M]**
2	**a)**	Differentiate fork() and vfork() system calls.	[L2][CO5]	**[6M]**
	b)	Identify the steps of how kernel supports a process.	[L3][CO5]	**[6M]**
3	**a)**	What is Zombie process?	[L1][CO5]	**[5M]**
	b)	Develop a program for Zombie process.	[L6][CO5]	**[7M]**
4	**a)**	Describe the attributes of a process.	[L2][CO5]	**[5M]**
	b)	Analyze the steps to control the process.	[L4][CO5]	**[7M]**
5	**a)**	What is Orphan process?	[L1][CO5]	**[5M]**
	b)	Develop a program for Orphan process.	[L6][CO5]	**[7M]**
6	**a)**	Write short note on wait(), waitpid(), kill()	[L1][CO5]	**[6M]**
	b)	List various types of signals in linux.	[L1][CO5]	**[6M]**
7	**a)**	What is a signal? Discuss the signals SIGKILL and SIGSTOP.	[L2][CO5]	**[6M]**
	b)	Briefly explain the reliable and unreliable signals.	[L2][CO5]	**[6M]**
8		Explain the following functions i) alarm ii) pause iii) sleep	[L2][CO5]	**[12M]**
9	**a)**	How the linux signals are generated. Explain	[L2][CO5]	**[6M]**
	b)	How the linux signals can handle. Explain	[L2][CO5]	**[6M]**
10		Explain in detail about signal functions with examples.	[L2][CO5]	**[12M]**

Course Code: 20MC9122 **R20**

UNIT –IV
INTERPROCESS COMMUNICATION

1	**a)**	Define IPC? Explain IPC using FIFOs.	[L2][CO5]	**[6M]**
	b)	Write short notes on IPC by using Message Queues.	[L1][CO5]	**[6M]**
2	**a)**	Discuss IPC between processes on a single system.	[L2][CO5]	**[6M]**
	b)	What is a pipe? Explain the process of calling a pipe.	[L2][CO5]	**[6M]**
3	**a)**	Describe the advantages of FIFO's over pipes.	[L2][CO5]	**[6M]**
	b)	Develop a C program to illustrate two way communication using FIFOs.	[L6][CO5]	**[6M]**
4	**a)**	Discuss IPC between processes on different systems.	[L2][CO5]	**[6M]**
	b)	Explain shmget, shmctl, msgget and msgctl.	[L2][CO5]	**[6M]**
5		Identify and Explain in detail about APIs for shared memory.	[L3][CO5]	**[12M]**
6		Express in detail about message queues and its APIs.	[L2][CO5]	**[12M]**
7		Compare how kernel supports for semaphore and shared memory.	[L5][CO5]	**[12M]**
8	**a)**	Discuss about file locking in semaphores.	[L2][CO5]	**[6M]**
	b)	Describe how pipes are used as a standard input and output.	[L2][CO5]	**[6M]**
9		Express in detail about semaphores and its APIs.	[L2][CO5]	**[12M]**
10	**a)**	Write about library functions popen() and pclose().	[L1][CO5]	**[6M]**
	b)	What is the difference between named and unnamed pipes?	[L1][CO5]	**[6M]**

Course Code: 20MC9122 **R20**

UNIT –V
MULTITHREADED PROGRAMMING and SOCKETS

1	**a)**	What is a Thread? Differentiate thread with process.	[L2][CO5]	**[6M]**
	b)	Explain about thread life cycle with neat diagram.	[L2][CO5]	**[6M]**
2		Determine POSIX thread creation and attributes.	[L3][CO5]	**[12M]**
3	**a)**	What is meant by synchronization? How it is achieved with semaphores?	[L2][CO5]	**[6M]**
	b)	List various multithreading models in details.	[L1][CO5]	**[6M]**
4	**a)**	Explain POSIX thread API in detail.	[L2][CO5]	**[6M]**
	b)	Explain the synchronization of threads by using mutexes.	[L2][CO5]	**[6M]**
5	**a)**	What is a socket? Explain various data types used by the sockets interface.	[L2][CO6]	**[6M]**
	b)	Distinguish between connection oriented and connectionless protocol.	[L4][CO6]	**[6M]**
6		What is a socket API? Explain types of various sockets.	[L2][CO6]	**[12M]**
7	**a)**	Describe socket system calls for connection oriented.	[L2][CO6]	**[6M]**
	b)	Describe socket system calls for connectionless protocol.	[L2][CO6]	**[6M]**
8		Sketch a diagram for a typical client/server model.	[L3][CO6]	**[12M]**
9		Classify various steps for creating client/server communication in connection oriented model.	[L4][CO6]	**[12M]**
10		Design the process of creating client/server communication in connectionless model.	[L6][CO6]	**[12M]**

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