SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
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QUESTION BANK (DESCRIPTIVE)

Subject with Code: LINUX PROGRAMMING (18MC9115) **Course & Branch**: MCA
Year & Sem: II-MCA & I-Sem **Regulation:** R18

UNIT – I

LINUX UTILITIES & WORKING WITH BASH

1)	a) Briefly explain Linux with its Architecture and Features	6M
	b) List some difference between Linux and Unix	6M
2)	a) Explain file handling utilities	6M
	b) List some linux commands on a directory utilities with examples	6M
3)	a) Explain Text processing utilities with suitable examples	6M
	b) Explain various process and disk utilities	6M
4)	a) Explain various file permissions in linux.	6M
	b) List and explain various networking commands.	6M
5)	a) Explain in detail about awk.	8M
	b) Write a shell script to delete duplicate files in the directory.	4M
6)	a) Explain in detail about sed.	8M
	b) Write a shell program to find the factorial of a given number.	4M
7)	a) Define shell. Describe the responsibilities of a shell.	6M
	b) Write short notes on here documents.	6M
8)	Explain	
	a) shell variable	4M
	b) filename substitution	4M
	c) command substitution	4M
9)	a) Write a short note on input and output redirections.	6M
	b) Write a shell program to find the factorial of a given number	6M
10)	Explain the control structures of shell in linux.	12M

UNIT – II

LINUX FILES

1) a) Explain file system structure with neat diagram. 6M

   b) Explain different types of files in linux. 6M

2) List and explain standard I/O Functions. 12M

3) Explain various file system calls. 12M

4) a) Define inode and discuss various file types used in linux. 6M

   b) Write short notes on Low level file access 6M

5) Explain a) Record locking b) System calls c) File descriptors. 12M

6) Explain and compare hard link and soft link. 12M

7) Explain the scanning directories in linux. 12M

8) Explain the following system calls

   a) fcntl b) read c) write d) lseek 12M

9) Explain the following

   a) fseek b) fgetc c) getc d) fputc e) putc 12M

10) Explain file and directory management commands. 12M

UNIT – III

LINUX PROCESS & SIGNALS

1) a) Define Process. Explain the process states in linux with a neat diagram. 6M
   b) List and discuss any three system calls for process management. 6M
2) a) Explain fork() and vfork() system calls with their differences. 6M
   b) Explain the steps of how kernel supports a process. 6M
3) a) What is Zombie process? Explain how zombie process can be removed from a system. 6M
   b) Write short note on wait(), waitpid(), kill() 6M
4) Briefly explain following with program
   a. ZOMBIE process 6M
   b. ORPHAN process. 6M
5) Explain process attributes and steps to control the process. 12M
6) a) What is a signal? Discuss the signals SIGKILL and SIGSTOP. 6M
   b) Briefly explain the reliable and unreliable signals. 6M
7) Explain how the linux signals generate and handled. 12M
8) Explain signal functions in detail. 12M
9) List and explain various signals in linux. 12M
10) Explain the steps how kernel supports a process and signals in linux. 12M

UNIT – IV

INTERPROCESS COMMUNICATION

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

UNIT – V

MULTITHREADED PROGRAMMING and SOCKETS

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

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