



# MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution)

(Approved by AICTE, New Delhi, Accredited by NAAC & Affiliated to Anna University)  
Rasipuram - 637 408, Namakkal Dist., Tamil Nadu.



## MUST KNOW CONCEPTS

MKC

MCA

2021-22

Course Code & Course Name : 19CAB18 & Network Programming

Year/Sem/Sec : II / III /-

S.No.	Term	Notation (Symbol)	Concept / Definition / Meaning / Units / Equation / Expression	Units
<b>Unit-I : Introduction</b>				
1.	Program	--	An executable file residing on disk in a directory	I
2.	Primary functions for process control	--	fork(), exec(), waitpid()	I
3.	Two ways of termination	--	Normal and Abnormal	I
4.	_exit() Vs exit()	--	The former is the System call and the later is the Standard C library function	I
5.	Signal	--	Asynchronous event which is delivered to a process	I
6.	System V IPCs	--	Semaphore, Message Queue, Shared Memory	I
7.	FIFO	--	First In First Out, It is a named pipe	I
8.	BASH	--	Bourne Again Shell. The most common shell interpreter used under Linux and offered as default on many Linux system	I
9.	BSD Unix	--	Berkeley Software Distribution Unix	I
10.	Character device	--	A device that sends / receives data asynchronously.	I
11.	Client	--	Shorthand referring to a computer that connects to a server.	I
12.	Command	--	Input typed at the shell that performs a specific task.	I
13.	Compile	--	The practice of creating a binary file from source code	I
14.	Cron	--	Background service that schedules tasks to occur at certain times	I
15.	CUPS	--	Common Unix Printing System	I
16.	Debian	--	Voluntary organization that produces	I

			distributions of Free Software operating systems.	
17.	FOSS	--	Free or Open Source Software; alternative term for FLOSS.	I
18.	gcc	--	GNU Compiler Collection; programs used when creating binary executable files from source code.	I
19.	GNOME	--	GNU Network Object Model Environment	I
20.	grep	--	Global Regular Expression Print	I
21.	GRUB	--	GRand Unified Bootloader	I
22.	host	--	Shorthand referring to any computer that acts as a server to another computer	I
23.	init	--	The program that is automatically run after the kernel has finished loading	I
24.	inode	--	Part of the usually invisible file system structure that describes a file, such as its ownership permissions or file size.	I
25.	KDE	--	K desktop environment;	I
<b>Unit-II : Elementary TCP Sockets</b>				
26.	Socket	--	An endpoint of two way communications in a network	II
27.	Bind function	--	Assigns a local protocol address to a socket	II
28.	Little Indian	--	The most significant byte is stored in the smallest address	II
29.	Big Indian	--	The most significant byte is stored in the biggest address	II
30.	Byte ordering functions	--	htons(), htonl(), ntohl(), ntohs()	II
31.	Byte manipulation functions	--	bzero(), bcopy(), bcmp(), memset(), memcpy()	II
32.	Iterative server	--	Server which serves one request at a time	II
33.	Concurrent server	--	Server which serves many clients at a time	II
34.	LAMP	--	Stands for Linux, Apache, MySQL, and Perl, PHP or Python	II
35.	link	--	File system method of assigning additional filenames to a file	II
36.	NFS	--	Network File System	II
37.	partition	--	Subdivision of a hard disk into which a file system can be installed	II
38.	PID	--	Process ID; the numbering system used to refer to a process	II

39.	pipe	--	Method of passing the output from one command to another for further processing.	II
40.	POSIX	--	Portable Operating System Interface	II
41.	PPP	--	Point-to-Point Protocol	II
42.	Red Hat	--	Well-known company that produces distributions of Linux	II
43.	redirect	--	To send the output of a command into a particular file.	II
44.	remote	--	Indicates a computer or service that is available across a network	II
45.	RPM	--	Red Hat Package Manager	II
46.	run level	--	Describes the current operational mode of Linux	II
47.	script	--	Form of computer program consisting of a series of commands in a text file	II
48.	server	--	Type of computer designed to share data with other computers over a network.	II
49.	service	--	Background program that provides vital functions for the day-to-day running of Linux	II
50.	Shell	--	It is the command interpreter	II
<b>Unit-III : Application Development</b>				
51.	Socket()	--	Function to create a socket	III
52.	TCP header flag bits	--	URG,ACK,PSH,RST,FIN,SYN	III
53.	Close() Vs Shutdown()	--	The former closes the connection while the later disables send or receive on a socket	III
54.	Zombie process	--	A process that had terminated whose parent is still running	III
55.	I/O multiplexing	--	Used when the client handles multiple descriptors	III
56.	IPC	--	Inter Process Communication	III
57.	SMB	--	Server Message Block; network technology for sharing files, printers, and other resources.	III
58.	Solaris	--	Form of Unix sold by Sun Microsystems	III
59.	source code	--	The original program listing created by a programmer	III
60.	SSH	--	Secure SHell; program that lets you access a Linux/Unix computer across the Internet	III
61.	standard error	--	Linux and Unix shorthand for the error output provided by a command.	III
62.	standard input	--	Linux and Unix shorthand for the device	III

			usually used to provide input to the shell.	
63.	standard output	--	Linux and Unix shorthand for the device usually used to display output from a command	III
64.	sudo	--	Program that runs under Unix and Linux by which ordinary users are temporarily afforded administrator rights.	III
65.	SVG	--	Scalable Vector Graphics	III
66.	swap	--	Area of the hard disk that the Linux kernel uses as a temporary memory storage area	III
67.	tar	--	Tape Archive; software able to combine several files into one larger file in order to back them up to a tape drive or simply transfer them across the Internet.	III
68.	TCP/IP	--	Transmission Control Protocol/Internet Protocol	III
69.	Ubuntu	--	Linux distribution with several unique characteristics	III
70.	user	--	The way the operating system refers to anyone who accesses its resources.	III
71.	xterm	--	Simple program that allows you to run a shell under X	III
72.	argc	--	A variable containing the number of arguments passed by the shell to a command.	III
73.	argv	--	An array, each of whose elements is one of the arguments passed by the shell to a command.	III
74.	ARP	--	Address Resolution Protocol	III
75.	awk	--	The command for executing programs written in the awk programming language	III
<b>Unit-IV : Socket options, Elementary UDP Sockets</b>				
76.	Socket option functions	--	getsockopt() and setsockopt()	IV
77.	UDP applications:	--	Streaming video,DNS lookups, Games	IV
78.	Conversion between hostname and IP address	--	gethostbyname(),gethostbyaddr()	IV
79.	hostent	--	Structure that contains all the IPv4 addresses for the host	IV
80.	IP address size	--	IPv4 – 32 bits, IPv6 – 128 bits	IV
81.	background process:	--	A job that runs without interfering with normal command-line entries.	IV
82.	binary file	--	A file created by a compilation process	IV
83.	BIND	--	Berkeley Internet Name Domain	IV
84.	block device	--	A data storage or transfer device that manipulates data in groups of a fixed size	IV

85.	configuration file	--	A file that specifies the characteristics of a system or subsystem.	IV
86.	connectionless mode	--	A mode of service supported by a transport endpoint that requires no established connection for transmitting data	IV
87.	connection-oriented mode	--	A mode of service supported by a transport endpoint for transmitting data over an established connection.	IV
88.	csh	--	The command that invokes the C shell.	IV
89.	daemon	--	A process that performs a system management function that is transparent to the user	IV
90.	data communication	--	The transmission of information between computers by means of a network such as an Ethernet, a telephone system, or a satellite link.	IV
91.	datagram	--	A unit of data that is transmitted across a network by the connectionless service of a transport provider	IV
92.	device driver	--	The software that controls a peripheral device such as a disk or a printer.	IV
93.	DHCP	--	Dynamic Host Configuration Protocol	IV
94.	directory	--	A type of file containing the names and controlling information for other files or other directories.	IV
95.	domain name system	--	A tree-structured system for organizing hosts names for an entire internet.	IV
96.	down time	--	The period during which a machine is unavailable for use.	IV
97.	editor	--	A program for modifying the contents of text files	IV
98.	environment	--	The set of conditions under which a user is working on the computer	IV
99.	file descriptor	--	A small unsigned integer that a UNIX system uses to identify a file	IV
100.	file system	--	The collection of files and file management structures on a physical or logical mass storage device.	IV

**Unit-V : Advanced Sockets**

101.	Thread	--	Lightweight process which shares the resources	V
102.	Mutex	--	Provides mutual exclusion, either producer or consumer can have the key(mutex), proceed with their work	V
103.	PING	--	Packet Internet Gropher, a network debugging utility	V
104.	filter	--	A command that reads standard input data, modifies the data, and sends it to standard output.	V

105.	Traceroute	--	Common utility which determines the route of a packet	V
106.	ICMP	--	Internet Control Message Protocol, used with ping utility as request and response	V
107.	foreground process	--	A job that must be completed or interrupted before the shell will accept more commands; a job receiving input from a workstation or terminal.	V
108.	fork	--	The command used to create and start a child process.	V
109.	head	--	A command that displays a user-specifiable number of lines from the beginning of a text file.	V
110.	home directory	--	A directory that is owned by a specific user and from which that user's other directories descend in a hierarchy	V
111.	internet address	--	A unique 32-bit number that identifies a host's connection to an internet network	V
112.	interrupt handler	--	Code in a program or operating system that performs actions in response to an interrupt.	V
113.	job	--	A unit of work defined by a user to be done by a system	V
114.	kernel	--	The integral part of the operating system that controls processes, system scheduling, memory management, input and output services, device management, network communications, and the organization of the file systems	V
115.	mailbox	--	A file that contains new and unread mail messages. The mailbox file is usually in the /usr/spool/mail directory.	V
116.	man	--	The command that displays reference pages on line; the name is a short form of manual.	V
117.	mount	--	A command used to make a file system available.	V
118.	owner	--	Usually, the user who creates a file.	V
119.	parent process	--	A process that has created other processes, called its children	V
120.	process table	--	A kernel data structure that contains relevant information about all processes in the system.	V
121.	pwd	--	The command that causes the system to display the absolute pathname of the user's working directory.	V
122.	raw socket	--	A socket that provides privileged users access to internal network protocols and interfaces.	V
123.	system call	--	Functions that access the file system and communication facilities of the kernel.	V
124.	stream socket	--	A socket that provides two-way byte streams across a transport connection.	V
125.	sed	--	The command that invokes the sed utility, the standard stream editor.	V

### Placement Questions

126.	Linux	--	Linux is a Unix-like open-source computer operating system (OS) released on 5 October 1991 by Linus Torvalds for computers and is considered more secure and faster than Windows.
127.	Kernel	--	It is considered a core or main part of Linux and is generally responsible for all major activities of OS such as process management, device management, etc.
128.	System Library	--	These are special functions or programs with the help of which application programs or system utilities can access features of the kernel without any requirement of code
129.	Shell	--	It is an environment in which we can run our commands, shell scripts, and programs. It is an interface between user and kernel that hides all complexities of functions of the kernel from the user. It is used to execute commands.
130.	Two types of Linux User Mode	--	Command Line and GUI are the two modes
131.	LILO	--	LILLO (Linux Loader) is basically a boot loader for Linux that is used to load Linux into memory and start the OS. It is also known as a boot manager that facilitates a dual boot of a computer.
132.	swap space	--	Swap space, as the name suggests, is basically a space on a hard disk that is used when the amount of physical memory or RAM is full. It is considered a substitute for physical memory.
133.	Process states	--	Created, Ready, Running, Waiting, Terminated
134.	File permissions	--	Read (r), Write (w), Execute (x)
135.	File to specify auto mounting	--	File that is used to automatically mount file systems is a Fstab file.
136.	Daemons	--	Daemons also referred to as the background process, is a long-running Linux program that runs in the background.
137.	Zombie Process	--	Zombie Process also referred to as a defunct or dead process in Linux, is a process that has finished the execution, but its entry remains in the process table.
138.	Cron	--	It is a program in Linux that is used to execute tasks at a scheduled time. It works effectively on machines that run continuously.
139.	Inode	--	It is a unique name given to each file by OS. Each inode has a unique inode number within a file system. It stores various information about files in Linux such as ownership, file

			size, file type, access mode, number of links, etc.
140.	First process in Linux	--	The first process started by the kernel in Linux is "init" and its process id is 1.
141.	PID	--	It is a unique Id given to each process. It is simply used to uniquely identify an active process throughout the system until the process terminates.
142.	/etc/resolv.conf	--	It is used to configure DNS name servers as it contains the details of the nameserver i.e., details of your DNS server. The DNS server is then used to resolve the hostname of the IP address.
143.	FTP port numbers	--	FTP 20 (Data transfer), 21 (Connection FTP established)
144.	SSH	--	SSH (Secure Shell), as the name suggests, is basically a protocol that is being used to securely connect to remote servers or systems and enables two systems to communicate.
145.	Three streams	standard	Standard input (stdin-0), Standard output (stdout-1), Standard error (stderr-2)
146.	netstat	--	netstat (Network statics) command is generally a networking tool being used for troubleshooting and configuration and used to display all network connections on a system
147.	ping	--	Linux ping (Packet Internet Groper) command is a command that is used to check connection status between source and destination
148.	pipe	--	In Linux, a pipe is basically a form of redirection that is used to send the output of one command to another command for further processing.
149.	SMB	--	Samba is basically an open-source software suite. It is generally used to connect Linux machines to Microsoft network resources simply by providing Microsoft SMB support.
150.	Socket	--	An endpoint of two-way communication in a network

**Faculty Prepared**

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