INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

COMPUTER SCIENCE AND ENGINEERING

DEFINITIONS AND TERMINOLOGY

Course Title	LINUX PROGRAMMING
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Course Faculty	Ms. K. Radhika, Assistant Professor Ms. P. Anjaiah, Assistant Professor Ms. G.Sulakshana, Assistant Professor Ms. N M Deepika, Assistant Professor

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.

DEFINITIONS AND TERMINOLOGY QUESTION BANK

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		UNIT-1				
1.	AWK command	Stands for: Aho, Weinberger, Kernighan (authors) Function: Scan each input file for lines that match any of a set of patterns specified literally in prog or in one or more files specified as -f file Syntax: awk [-Ffs] [-v var=value] [-mrn] [-	Remember	CO 1	CLO 1	ACS010.01

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		mfn] [-f prog [prog] [file ...].				
2.	Grep: (Global Regular Expression)	grep searches the named input FILEs (or standard input if no files are named, or if a single hyphen-minus (-) is given as file name) for lines containing a match to the given PATTERN. By default, grep prints the matching lines. grep [OPTIONS] PATTERN [FILE...] grep [OPTIONS] [-e PATTERN	-f FILE] [FILE...]	Remember	CO 1	CLO 5	ACS010.05
3.	The fgrep and egrep command:	The fgrep and egrep command are advanced pattern matching command. The fgrep command doesn't use any meta character for its searched pattern. The primary advantage of fgrep is it can also search two or more than two strings simultaneously. $fgrep 'good	Remember	CO 1	CLO 5	ACS010.05
4.	How will you find which operating system your system is running on in UNIX?	By using command "uname -a" in UNIX .	Remember	CO 1	CLO 1	ACS010.01
5.	What is Sort command?	Sorting is the ordering of data in ascending or descending sequence. The sort command orders a file. By default sort reorders lines in ASCII collating sequence_ white space first, then numerals, uppercase letters and finally lowercase letters. .	Understand	CO 1	CLO 2	ACS010.02
6.	What is Linux?	Linux is an operating system based on UNIX and was first introduced by Linus Torvalds. It is based on the Linux Kernel and can run on different	Understand	CO 1	CLO 1	ACS010.01

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		hardware platforms manufactured by Intel, MIPS, HP, IBM, SPARC, and Motorola.				
7.	What is UNIX?	The UNIX operating system was originally developed at Bell Laboratories, once part of the telecommunications giant AT&T. Designed in the 1970s for Digital Equipment PDP computers, UNIX has become a very popular multiuser, multitasking operating system for a wide variety of hardware platforms, from PC workstations to multiprocessor servers and supercomputers.	Understand	CO 1	CLO 1	ACS010.01
8.	What are features of UNIX?	Systems use a centralized operating system kernel which manages system and process activities. All non-kernel software is organized into separate, kernel-managed processes.	Remember	CO 1	CLO 2	ACS010.02
9.	What is Ordinary file?	It contains data as a stream of characters. It is of 2 types. Text file: contains printable characters.	Understand	CO 1	CLO 2	ACS010.02
10.	What is Binary file?	It contains both printable & non printable characters.	Remember	CO 1	CLO 2	ACS010.02
11.	What is Directory file?	It contains no data but it maintains some details of the files & subdirectories that it contains.	Remember	CO 1	CLO 2	ACS010.02
12.	What is Device file?	It represents the device or peripheral.	Understand	CO 1	CLO 2	ACS010.02
13.	What are UNIX directory/file system?	Bin: contains executable files for most of the unix commands. Lib: contains all the library functions in binary form. Usr: contains several directories each associated with a particular user.	Understand	CO 1	CLO 4	ACS010.04
14.	What is	In this mode all the keys pressed by the	Understand	CO 1	CLO 3	ACS010.03

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
	Command mode?	user are interpreted as commands. It may perform some actions like move cursor, save, delete text, quit vi, etc.				
15.	What is Input/Insert mode?	used for inserting text. – start by typing i; finish with ESC	Remember	CO 1	CLO 3	ACS010.03
16.	What is Ex mode or last line mode?	Used for giving commands at command line. The bottom line of vi is called the command line.	Remember	CO 1	CLO 3	ACS010.03
17.	What is a thread management?	Unix systems are preemptively multitasking: multiple processes can run at the same time, or within small time slices and nearly at the same time, and any process can be interrupted and moved out of execution by the kernel.	Remember	CO 1	CLO 3	ACS010.03
18.	Write an GNU?	GNU may one day turn out to be very different from UNIX in the way it handles the hardware and manages running programs, but it will still support UNIX-style applications.	Understand	CO 1	CLO 2	ACS010.02
19.	What is vi editor in Linux programming?	vi editor is a fully text editor in Linux Operating System, it's next (improved) version is VIM (vi improved). It allows you to create, edit your text. It's very useful to create text files, scripts, make files and to write programs in c ,c++ and others.	Understand	CO 1	CLO 2	ACS010.02
20.	What are file handling utilities?	These are the Linux commands which help you to create, delete, rename, move, copy, edit and perform other related activities on Linux files. To Linux, a file is a named collection of related data that appears to the user as a single, contiguous block of information and that is retained in storage.	Understand	CO 1	CLO 1	ACS010.01

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
21.	What are security utilities?	chgrp – changes the default group associated with a file.chmod – changes the access permissions of a file or directory. chown – changes the owner of a file or directory..	Understand	CO 1	CLO 3	ACS010.03
22.	Define process utilities?	Ps with –f option displays a fuller listing that includes the PPID. Ps with –u option followed by user-id displays the processes owned by the user-id. Ps with –e option displays the system processes.	Remember	CO 1	CLO 3	ACS010.03
23.	What are disk utilities?	Du estimate the file space usage on the disk. Df displays the amount of free space available on the disk. The output displays for each file system separately.	Remember	CO 1	CLO 3	ACS010.03
24.	What are Text processing utilities?	cat: cat is used to create the files. tail: tail command displays the end of the file. It displays the last ten lines by default. head: head command as the name implies, displays the top of the file. When used without an option, it displays the first 10 lines of the file. Sort: Sort can be used for sorting the contents of a file. nl: nl is used for numbering lines of a file. Nl numbers only logical lines – those containing something other apart from the new line character. Grep: globally search for a regular expression and print.	Remember	CO 1	CLO 2	ACS010.02
25.	What are networking commands?	ftp: file transfer protocol ftp is used to transfer files. It can be used with host name. telnet: Remote login If you have an account on	Understand	CO 1	CLO 3	ACS010.03

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		the host in a local network (or on internet),u can use this with the host name or the ip address as argument. rlogin: remote login without password				
26.	What is AWK?	Awk: Aho, Weinberger and Kernighan Awk is not just a command, but a programming language too. Syntax: awk options 'selection criteria {action}' file(s) awk –F "|" '/Simpsons/ {print $1}' homer	Understand	CO 1	CLO 5	ACS010.05
27.	What is Os?	An operating system (OS) is system software that manages computer hardware and software resources and provides common services for computer programs.	Remember	CO 1	CLO 1	ACS010.01
28.	What is Linux?	The Linux open source operating system, or Linux OS, is a freely distributable, cross-platform operating system based on Unix that can be installed on PCs, laptops, netbooks, mobile and tablet devices, video game consoles, servers, supercomputers and more.	Remember	CO 1	CLO 1	ACS010.01
29.	What is the difference between UNIX and Linux?	UNIX was originally started as a propriety operating system for Bell Laboratories, which later release their commercial version while Linux is a free, open source and a non-propriety operating system for the mass uses.	Remember	CO 1	CLO 1	ACS010.01
30.	What is Linux Kernel?	Linux Kernel is low-level system software. It is used to manage the hardware resources for the users. It provides an interface for user-level interaction.	Understand	CO 1	CLO 1	ACS010.01
31.	Name some Linux variants	Some of the Linux varients are: • CentOS • Ubuntu	Remember	CO 1	CLO 1	ACS010.01

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		• Redhat • Debian				
32.	List features of UNIX?	Linux features are: Portable(Multiplatform) Multitasking. Multi User. Multiprocessor (SMP) Support. Multithreading Support. Virtual Memory. Hierarchical File System. Graphical User Interface	Remember	CO 1	CLO 1	ACS010.01
33.	Define shell	shell is a command interpreter, which interprets the command which the user gives to the kernel. It can also be defined as an interface between a user and operating system.	Understand	CO 1	CLO 1	ACS010.01
34.	What are the three editors available in almost all the versions of UNIX?	The three editors are ed, ex & vi.	Remember	CO 1	CLO 1	ACS010.01
35.	What is CLI?	CLI stands for Command Line Interface. It is an interface that allows users to type declarative commands to instruct the computer to perform operations.	Remember	CO 1	CLO 1	ACS010.01
36.	What is BASH?	BASH is a short form of Bourne Again SHell. It was a replacement to the original Bourne shell, written by Steve Bourne.	Remember	CO 1	CLO 1	ACS010.01
37.	What is a virtual desktop?	The virtual desktop is used as an alternative to minimizing and maximizing different windows on the current desktop. Virtual desktop facilitates you to open one or more programs on a clean slate rather than minimizing or restoring all the needed	Remember	CO 1	CLO 1	ACS010.01

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		programs.				
38.	Define inode	Each file is given a unique name by the operating system which is called as the inode.	Understand	CO 1	CLO 3	ACS010.01
39.	List files handling utilities?	• mkdir • cd • mkdir • pwd • cp • mv • rm • ln • unlink	Remember	CO 1	CLO 2	ACS010.01
40.	What are the file permissions in Linux?	There are 3 types of permissions in Linux OS that are given below: Read: User can read the file and list the directory. Write: User can write new files in the directory . Execute: User can access and run the file in a directory.	Understand	CO 1	CLO 1	ACS010.01
41.	What is sed?	sed stands for stream editor. And it is used for editing a file without using an editor. It is used to edit a given stream i.e. a file or input from a pipeline.	Remember	CO 1	CLO 4	ACS010.01
42.	State kernel role in Linux?	The kernel is the essential center of a computer operating system (OS). It is the core that provides basic services for all other parts of the OS. It is the main layer between the OS and hardware, and it helps with process and memory management, file systems, device control and networking.	Remember	CO 1	CLO 4	ACS010.01
43.	Give the syntax of grep command?	grep [options] pattern [files] Options Description -c : This prints only a count of the lines that match a pattern -h : Display the matched lines, but do not display the filenames. -i : Ignores, case for	Remember	CO 1	CLO 5	ACS010.01

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		matching -l : Displays list of a filenames only. -n : Display the matched lines and their line numbers. -v : This prints out all the lines that do not matches the pattern -e exp : Specifies expression with this option. Can use multiple times.				
44.	Define hard link of a file.	A hard link is an additional name for an existing file on Linux or other Unix-like operating systems. Hard links are created with the ln command. For example, the following would create a hard link named hlink1 to a file named file1, both in the current directory (i.e., the directory in which the user is currently working):ln file1 hlink1	Remember	CO 1	CLO 2	ACS010.01
45.	Find the list of files in a directory along with file attributes.	ls lists files and directories. If the pathname is a file, ls displays information about the file according to the requested options. If it is a directory, ls displays information about the files and subdirectories therein. You can get information about a directory itself using the –d option. If you do not specify any options, ls displays only the file names.	Understand	CO 1	CLO 2	ACS010.01
46.	What is vi editor?	The VI editor is the most popular and classic text editor in the Linux family.	Remember	CO 1	CLO 1	ACS010.01
47.	Define soft link of a file.	Symbolic links, also called soft links, are more useful than hard links because they can be made to directories as well as to files on	Remember	CO 1	CLO 2	ACS010.02

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		different file systems and on different partitions. Moreover, when using a GUI, symbolic links have special icons that immediately identify them as being links rather than ordinary files. However, they have the disadvantage that they become unusable if their target file is deleted. Type the command: ls -la.				
48.	Compare CP and MV commands.	mv command in Unix: mv is used to move or rename the files but it will delete the original file while moving. cp command in Unix: cp is used to copy the files but like mv it's not delete the original file means original file remain as it is.	Remember	CO 1	CLO 2	ACS010.02
49.	What is rlogin command purpose?	The rlogin and rsh are the remote login services provided by Linux. These services can be used to log in to a remote system and execute commandson it. Rlogin uses a hidden file called .rhosts that is present on the host machine.	Remember	CO 1	CLO 3	ACS010.03
50.	Give the syntax of chmod command?	There will be a Permission tab where you can change the file permissions. In the terminal, the command to use to change file permission is " chmod ". In short, "chmod 777" means making the file readable, writable and executable by everyone. Syntax: chmod [Options]... Mode [,Mode]... file.	Remember	CO 1	CLO 3	ACS010.03
51.	Give the use of telnet command with example?	Telnet can be used from a virtual terminal, that communicates with the same Telnet protocol. One example of this is the Telnet command,	Remember	CO 1	CLO 3	ACS010.03

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		available in the Command Prompt in Windows.				
52.	What is ftp in Unix?	FTP is file transfer protocol to exchange files to and from a remote computer or network.	Remember	CO 1	CLO 3	ACS010.03
53.	Differentiate gzip/gunzip commands?	Files created by zip can be uncompressed by gzip only if they have a single member compressed with the "deflation" method. This feature is intended only to help conversion of tar.zip files to the tar.gz format. To extract zip files with several members, obtain and use unzip instead of gunzip.	Remember	CO 1	CLO 3	ACS010.03
54.	List AWK operations.	An AWK command within single quotes at command line as awk [options] file ...	Remember	CO 1	CLO 5	ACS010.05
55.	Explain the Syntax of SED Command.	The SED command in UNIX stands for stream editor, which is used to make changes to file content. sed -i 's/old-text/new-text/g' input.txt. The s is the substitute command of sed for find and replace. It tells sed to find all occurrences of 'old-text' and replace with 'new-text' in a file named input.txt.	Remember	CO 1	CLO 4	ACS010.01
56.	Write a sed command to replace complexsql by amit in every line from SED_file.txt.	sed "s/complexsql/Amit/g" Sed_File; The above command replaces the word complexsql to Amit.Here s stands for substitution and g stands for every line.	Remember	CO 1	CLO 4	ACS010.04
		UNIT-II				
1.	What is Shell scripting	Shell scripting is nothing but series or sequence of UNIX commands written in a plain text file. Instead	Remember	CO 2	CLO 6	ACS010.06

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		of specifying one job/command at a time, in shell scripting we give a list of UNIX commands like a to-do list in a file to execute it.				
2.	What is the Importance of writing Shell Scripts?	• Shell script takes input from the user, file and displays it on the screen. • Shell scripting is very useful in creating your own commands. • It is helpful in automating some tasks of the day to day life. • It is useful for automating system administration tasks. Mainly it saves time.	Remember	CO 2	CLO 6	ACS010.06
3.	What are the different Types of Shells available?	There are mainly 4 important types of shells that are widely used. • Bourne Shell (sh) • C Shell (csh) • Korn Shell (ksh) • Bourne Again Shell (bash)	Remember	CO 2	CLO 6	ACS010.06
4.	What are the Advantages of C Shell over Bourne Shell?	The advantages of C Shell over Bourne Shell are: C shell allows aliasing of commands i.e. a user can give any name of his choice to the command. This feature is mainly useful when a user	Remember	CO 2	CLO 6	ACS010.06
5.	What are positional parameters?	Positional parameters are the variables defined by a shell. And they are used whenever we need to convey information to the program. And this can be done by specifying arguments at the command line.	Remember	CO 2	CLO 6	ACS010.06
6.	What are Shell Variables?	Shell variables are the main part of shell programming or scripting. They mainly provide the ability to store and manipulate	Remember	CO 2	CLO 6	ACS010.06

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		information within a shell program.				
7.	What is a file system?	The file system is a collection of files which contain related information of the files.	Remember	CO 2	CLO 6	ACS010.06
8.	What are the different blocks of a file system?	Super Block: This block mainly tells about a state of the file system like how big it is, maximum how many files can be accommodated etc. Boot Block: This represents the beginning of a file system. It contains bootstrap loader program, which gets executed when we boot the host machine. Inode Table: As we know all the entities in a UNIX are treated as files. So, the information related to these files are stored in an Inode table. Data Block: This block contains the actual file contents.	Remember	CO 2	CLO 7	ACS010.07
9.	What are the default permissions of a file when it is created?	666 i.e. rw-rw-rw- is the default permission of a file when it is created.	Remember	CO 2	CLO 7	ACS010.07
10	How to find the current shell which you are using?	$ echo $SHELL	Remember	CO 2	CLO 7	ACS010.07
11	How to find all the available shells in your system?	We can find all the available shells in our system with $ cat /etc/shells.	Remember	CO 2	CLO 7	ACS010.07
12	Define System call?	A system call is just a user space request of a kernel service. System calls are provided by UNIX to access and control files and devices	Remember	CO 2	CLO 8	ACS010.07
13	What is write system call?	The write system call arranges for the first nbytes bytes from buf	Remember	CO 2	CLO 8	ACS010.08

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		to be written to the file associated with the file descriptor fildes.				
14	What is read system call?	The read system call reads up to nbytes of data from the file associated with the file decriptor fildes and places them in the data area buf.	Remember	CO 2	CLO 8	ACS010.08
15	What is open system call?	To create a new file descriptor we need to use the open system call.	Remember	CO 2	CLO 8	ACS010.08
16	List different types of shells in Linux?	1. Bash Shell. Bash stands for Bourne Again Shell and it is the default shell on many Linux distributions today. 2. Csh Shell. 3. Ksh Shell.	Remember	CO 2	CLO 6	ACS010.06
17	Define shell script?	Shell is a program which interprets user commands through CLI like Terminal.	Remember	CO 2	CLO 6	ACS010.06
18	Define pipes in linux?	A pipe is a form of redirection that is used in Linux and other Unix-like operating systems to send the output of one program to another program for further processing. Pipes are used to create what can be visualized as a pipeline of commands, which is a temporary direct connection between two or more simple programs.	Remember	CO 2	CLO 6	ACS010.06
19	Illustrate the use of here document?	A block of code or text which can be redirected to the command script or interactive program is called here document or HereDoc. Different types of scripting language like bash, sh, csh, ksh etc. can take text input directly using here document without using any text file. Eg: cat <<'EOF' | sed 's/a/b/' | sudo tee /etc/confiEOF	Remember	CO 2	CLO 6	ACS010.06

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
20	List the shell meta characters?	A metacharacter is a special character in a program or data field that provides information about othercharacters .... s, metacharacters include, but are not limited to these: * ; |] [?	Remember	CO 2	CLO 6	ACS010.06
21	What is the symbol used for Output redirection?	>>(append)	Remember	CO 2	CLO 6	ACS010.06
22	Define command substitution?	Command substitution allows you to capture the output of any command as an argument to another command.	Remember	CO 2	CLO 6	ACS010.06
23	What is the use of quoting?	Quoting means just that, bracketing a string in quotes. This has the effect of protecting special characters in the string from reinterpretation or expansion by the shell or shell script. (A character is "special" if it has an interpretation other than its literal meaning. For example, the asterisk * represents a wild card character in globing and Regular Expressions).	Remember	CO 2	CLO 6	ACS010.06
24	State the use of test command?	test is a command-line utility found in Unix-like operating systems that evaluates conditional expressions. Syntax: test expression	Remember	CO 2	CLO 6	ACS010.06
25	What all are the things that happen when an interrupt occurs?	In the Linux kernel, interrupt processing is divided in two parts: The "top half" is the interrupt handler. It does the minimum necessary, typically communicate with the hardware and set a flag somewhere in kernel memory. The "bottom half" does	Remember	CO 2	CLO 6	ACS010.06

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		any other necessary processing, for example copying data into process memory, updating kernel data structures, etc. It can take its time and even block waiting for some other part of the system since it runs with interrupts enabled.				
26	Define the System calls for file I/O operations ?	Open(), create(), read(), write(), close()	Remember	CO 2	CLO 6	ACS010.06
27	What is the use of fcntl function?	Locks and Other File Operations. The fcntl system call is the access point for several advanced operations on file descriptors. The first argument to fcntl is an open file descriptor, and the second is a value that indicates which operation is to be performed. The second argument to the fcntl function is a command that specifies which operation to perform. The function and macros that name various flags that are used with it are declared in the header file fcntl.h .	Remember	CO 2	CLO 8	ACS010.08
28	Define file permissions?	Ownership of Linux files: Every file and directory on your Unix/Linux system is assigned 3 types of owner, given below. User:A user is the owner of the file. By default, the person who created a file becomes its owner. Group:A user- group can contain multiple users. All users belonging to a group will have the same access permissions to the file.	Remember	CO 2	CLO 8	ACS010.08

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
29	What are inodes in linux?	The inode (index node) is a data structure in a Unix-style file system that describes a file-system object such as a file or a directory. Each inode stores the attributes and disk block location(s) of the object's data.	Remember	CO 2	CLO 8	ACS010.08
30	What is a Shell?	A shell is a program that acts as the interface between you and the Linux system, enabling you to enter commands for the operating system to execute. In that respect, it resembles the Windows command prompt, but as mentioned earlier, Linux shells are much more powerful.	Remember	CO 2	CLO 6	ACS010.06
31	Why Program with a Shell?	One reason to use the shell for programming is that you can program the shell quickly and simply. Moreover, a shell is always available even on the most basic Linux installation, so for simple prototyping you can find out if your idea works.	Understand	CO 2	CLO 6	ACS010.06
32	What is Pipes?	You can connect processes using the pipe operator (	). In Linux, unlike in MS-DOS, processes connected by pipes can run simultaneously and are automatically rescheduled as data flows between them. As a simple example, you could use the sort command to sort the output from ps.	Understand	CO 2	CLO 8	ACS010.08
33	Define Interactive Programs	Just typing the shell script on the command line is a quick and easy way of trying out small code fragments, and is very useful while you are learning or just testing things out. Suppose you have a large number of C files	Understand	CO 2	CLO 8	ACS010.08

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		and wish to examine the files that contain the string POSIX				
34	What is a Shell Programming Language?	Now that you've seen some basic shell operations, it's time to move on to some actual shell programs. There are two ways of writing shell programs. You can type a sequence of commands and allow the shell to execute them interactively, or you can store those commands in a file that you can then invoke as a program.	Understand	CO 2	CLO 6	ACS010.06
35	Define Shell Syntax?	Now that you've seen an example of a simple shell program, it's time to look in greater depth at the programming power of the shell. The shell is quite an easy programming language to learn, not least because it's easy to test small program fragments interactively before combining them into bigger scripts.	Understand	CO 2	CLO 6	ACS010.06
36	What are Variables	You don't usually declare variables in the shell before using them. Instead, you create them by simply using them (for example, when you assign an initial value to them). By default, all variables are considered and stored as strings, even when they are assigned numeric values. The shell and some utilities will convert numeric strings to their values in order to operate on them as required. Linux is a case-sensitive system	Understand	CO 2	CLO 6	ACS010.06
37	Define Quoting?	Normally, parameters in scripts are separated by whitespace characters (e.g., a space, a tab, or a newline character). If you want a parameter to contain one or more	Understand	CO 2	CLO 6	ACS010.06

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		whitespace characters, you must quote the parameter.				
38	Write about Environment Variables	When a shell script starts, some variables are initialized from values in the environment. These are normally in all uppercase form to distinguish them from user-defined (shell) variables in scripts, which are conventionally lowercase. The variables created depend on your personal configuration.	Understand	CO 2	CLO 6	ACS010.06
39	What are parameter Variables	If your script is invoked with parameters, some additional variables are created. If no parameters are passed, the environment variable $# still exists but has a value of 0. As you can see, within double quotes, $@ expands the positional parameters as separate fields, regardless of the IFS value. In general, if you want access to the parameters, $@ is the sensible choice. In addition to printing the contents of variables using the echo command, you can also read them by using the read command.	Remember	CO 2	CLO 6	ACS010.06
40	What is test or Command	In practice, most scripts make extensive use of the [or test command, the shell's Boolean check. On some systems, the [and test commands are synonymous, except that when the [command is used, a trailing] is also used for readability. Having a [command might seem a little odd, but within the code it does make the syntax of	Remember	CO 2	CLO 6	ACS010.06

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		commands look simple, neat, and more like other programming languages.				
41	Define Control Structures	The shell has a set of control structures, which are very similar to other programming languages. In the following sections, the statements are the series of commands to perform when, while, or until the condition is fulfilled.	Understand	CO 2	CLO 7	ACS010.07
42	What is Arithmetic in shell	The $((...)) is a better alternative to the expr command, which allows simple arithmetic commands to be processed.	Understand	CO 2	CLO 7	ACS010.07
43	What are Commands	You can execute normal command and built-in commands from a shell script. Built-in commands are defined and only run inside of the script	Remember	CO 2	CLO 7	ACS010.07
44	What is break	It is used to escape from an enclosing for, while or until loop before the controlling condition has been met.	Understand	CO 2	CLO 7	ACS010.07
45	What are Regular files:	The most common type of file, which contains data of some form. There is no distinction to the UNIX kernel whether this data is text or binary	Understand	CO 2	CLO 7	ACS010.07
46	What is Directory file and Character special file	A file contains the names of other files and pointers to information on these files. Any process that has read permission for a directory file can read the contents of the directory, but only the kernel can write to a directory file. A type of file used for certain types of devices on a system	Understand	CO 2	CLO 7	ACS010.07
47	Define Block special file and FIFO	A type of file typically used for disk devices. All devices on a system	Understand	CO 2	CLO 7	ACS010.07

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		are either character special files or block special files. A type of file used for inter process communication between processes. It's sometimes called a named pipe				
48	What are Socket and Symbolic link	A type of file used for network communication between rocesses. A socket can also be used for non network communication between processes on a single host. A type of file that points to another file	Remember	CO 2	CLO 7	ACS010.07
49	What are Files and Devices	Even hardware devices are represented (mapped) by files in UNIX. For example, as root, you mount a CD-ROM drive as a file, $ mount -t iso9660 /dev/hdc /mnt/cd_rom $ cd /mnt/cd_rom /dev/console - this device represents the system console./dev/tty - This special file is an alias (logical device) for controlling terminal (keyboard and screen, or window) of a process. /dev/null - This is the null device. All output written to this device is discarded.	Understand	CO 2	CLO 9	ACS010.09
50	What is read?	The read system call reads up to nbytes of data from the file associated with the file decriptor fildes and places them in the data area buf. This program, simple_read.c, copies the first 128 bytes of the standard input to the standard output.	Understand	CO 2	CLO 9	ACS010.09
51	What is Shell Scripting?	Shell scripting is nothing but series or sequence of UNIX commands written in a plain text file. Instead of specifying one	Remember	CO 2	CLO 6	ACS010.06

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		job/command at a time, in shell scripting we give a list of UNIX commands like a to-do list in a file to execute it.				
52	What is the Importance of writing Shell Scripts?	• Shell script takes input from the user, file and displays it on the screen. • Shell scripting is very useful in creating your own commands. • It is helpful in automating some tasks of the day to day life. • It is useful for automating system administration tasks. Mainly it saves time.	Remember	CO 2	CLO 6	ACS010.06
53	What are the different Types of Shells available?	There are mainly 4 important types of shells that are widely used. • Bourne Shell (sh) • C Shell (csh) • Korn Shell (ksh) • Bourne Again Shell (bash)	Remember	CO 2	CLO 6	ACS010.06
54	What are the Advantages of C Shell over Bourne Shell?	The advantages of C Shell over Bourne Shell are: • C shell allows aliasing of commands i.e. a user can give any name of his choice to the command. This feature is mainly useful when a user has to type the lengthy command again and again. At that point of time, instead of typing a lengthy command a user can type the name that he has given. • C shell provides command history feature. C shell remembers the previously typed command. Thus, it avoids typing the command again and again.	Remember	CO 2	CLO 6	ACS010.06

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
55	What are positional parameters?	Positional parameters are the variables defined by a shell. And they are used whenever we need to convey information to the program. And this can be done by specifying arguments at the command line.	Understand	CO 2	CLO 6	ACS010.06
56	What are Shell Variables?	Shell variables are the main part of shell programming or scripting. They mainly provide the ability to store and manipulate information within a shell program.	Remember	CO 2	CLO 7	ACS010.07
57	What is a file system?	The file system is a collection of files which contain related information of the files.	Remember	CO 2	CLO 6	ACS010.06
58	What are the different blocks of a file system?	Super Block: This block mainly tells about a state of the file system like how big it is, maximum how many files can be accommodated etc. Boot Block: This represents the beginning of a file system. It contains bootstrap loader program, which gets executed when we boot the host machine. Inode Table: As we know all the entities in a UNIX are treated as files. So, the information related to these files are stored in an Inode table.	Remember	CO 2	CLO 6	ACS010.06
59	What are the default permissions of a file when it is created?	666 i.e. rw-rw-rw- is the default permission of a file when it is created.	Remember	CO 2	CLO 7	ACS010.07
60	How to find the current shell which you are using?	$ echo $SHELL	Remember	CO 2	CLO 6	ACS010.06
61	How to find all the available	We can find all the available shells in our system with $ cat	Understand	CO 2	CLO 6	ACS010.06

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
	shells in your system?	/etc/shells.				
		UNIT-III				
1.	Define Process?	A process as an address space and single thread of control that executes within that address space and its required system resources. Program is a running program	Remember	CO 3	CLO 11	ACS010.11
2.	Define Process Identifier	Every process has a unique process ID, a non-negative integer. There are two special processes. Process ID is usually the schedule process and is often known as the swapper'.	Remember	CO 3	CLO 11	ACS010.11
3.	State process table	The process table is a data structure maintained by the operating system to facilitate context switching and scheduling	Understand	CO 3	CLO 11	ACS010.11
4.	What process scheduling	The act of determining which *process* is in the ready state, and should be moved to the running state is known as *Process Scheduling*	Remember	CO 3	CLO 11	ACS010.11
5.	Define fork	The fork function can create a new process	Remember	CO 3	CLO 11	ACS010.11
6.	Illustrate fork and vfork	The child process created by the fork has a separate memory space from the parent process. child process created using vfork suspend the execution of parent process till its execution is completed.	Remember	CO 3	CLO 11	ACS010.11
7.	Define process termination	Process termination is a technique in which process is terminated and release the CPU after completing the execution using exit( ) system call to terminate a process	Remember	CO 3	CLO 11	ACS010.11
8.	What is zombie	What happens when a child terminates and	Rememerb	CO 3	CLO 11	ACS010.11

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
	processes	the parent process hasn't called wait yet? We still want to be able to see how a child process terminated, so even though the child process finished, the kernel turns the child process into a zombie process				
9.	What is orphan process?	When a parent process dies before a child process, the kernel knows that it's not going to get a wait call, so instead it makes these processes "orphans" and puts them under the care of init	Understand	CO 3	CLO 11	ACS010.11
10.	Define system call	a *system call* is the programmatic way in which a computer program requests a service from the kernel of the operating *system* it is executed on.	Remember	CO 3	CLO 11	ACS010.11
11.	List process system calls	process system calls • Fork • Vfork • Exec • Wait • Waitpid • Exit	Remember	CO 3	CLO 11	ACS010.11
12.	Define vfork system call?	The fork function can create a new process that then causes another program to be executed by calling one of the exec functions	Remember	CO 3	CLO 11	ACS010.11
13.	State exit system call?	The function _exit() terminates the *calling* process immediately	Remember	CO 3	CLO 12	ACS010.12
14.	Define waitpid system call?	When a process terminates, either normally or abnormally, the parent is notified by the kernel sending the parent SIGCHLD signal. Since the termination	Remember	CO 3	CLO 12	ACS010.12

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		of a child is an asynchronous event, this signal is the asynchronous notification from the kernel to the parent.				
15.	What is exec system call?	When a process calls one of the exec functions, that process is completely replaced by the new program and the new program starts executing at its main function.	Understand	CO 3	CLO 12	ACS010.12
16.	Define Signals system call?	A *signal* is an asynchronous notification sent to a process or to a specific thread within the same process in order to notify it of an event that occurred. include <signal.h> void (*signal(int signo, void (*func)(int)))(int);	Remember	CO 3	CLO 12	ACS010.12

17.	What is kill system call?	The kill function sends a signal to a process or a group of processes.
		
		#include <signal.h>
		
		int kill(pid_t pid, int signo);
		
		int raise(int signo);
		
		Both return: 0 if OK,-1 on error.
			Remember	CO 3	CLO 12	ACS010.12

18.	Define raise system call?	The raise function allows a process to send a signal to it.
		
		#include <signal.h>
		
		int kill(pid_t pid, int signo);
		
		int raise(int signo);
		
		Both return: 0 if OK,-1 on error.
			Understand	CO 3	CLO 12	ACS010.12

19.	Define alarm system call?	The alarm function allows us to get a timer that will expire at a	Remember	CO 3	CLO 12	ACS010.12

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		specified time in the future. When the timer expires, the SIGALRM signal is generated.				
20.	Define pause system call?	pause() causes the calling process (or thread) to sleep until a signal is delivered that either terminates the process or causes the invocation of a signal-catching function. #include <unistd.h> int pause(void); Returns: 1 with errno set to EINTR	Remember	CO 3	CLO 12	ACS010.12
21.	What is Abort system call?	abort function causes abnormal program termination. #include <stdlib.h> void abort(void); This function never returns.	Remember	CO 3	CLO 12	ACS010.12
22.	What is System command?	system() is used to invoke an operating system command from a C program. #include <stdlib.h> int *system*(const char *cmdstring);	Remember	CO 3	CLO 12	ACS010.12
23.	Define sleep system call?	Sleep can be implemented with an alarm function. If alarm is used, however, there can be interaction between the two functions. #include <unistd.h> unsigned int sleep(unsigned int seconds); Returns: 0 or number of unslept seconds.	Understand	CO 3	CLO 12	ACS010.12
24.	What is Processes?	Process is any kind of program or task carried	Remember	CO 3	CLO 11	ACS010.11

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		out by your PC. For e.g. $ ls -lR , is command or a request to list files in a directory and all subdirectory in your current directory.				
25.	Define process termination	Process termination is a technique in which process is terminated and release the CPU after completing the execution using exit( ) system call to terminate a process	Remember	CO 3	CLO 11	ACS010.11
26.	What is zombie processes	What happens when a child terminates and the parent process hasn't called wait yet? We still want to be able to see how a child process terminated, so even though the child process finished, the kernel turns the child process into a zombie process	Remember	CO 3	CLO 11	ACS010.11
27.	What is orphan process?	When a parent process dies before a child process, the kernel knows that it's not going to get a wait call, so instead it makes these processes "orphans" and puts them under the care of init	Understand	CO 3	CLO 11	ACS010.11
28.	Define system call	a system call is the programmatic way in which a computer program requests a service from the kernel of the operating system it is executed on.	Remember	CO 3	CLO 11	ACS010.11
29.	List process system calls	process system calls • Fork • Vfork • Exec • Wait	Remember	CO 3	CLO 11	ACS010.11
30.	Define vfork system call?	The fork function can create a new process that then causes another program to be executed by calling one of the exec functions	Remember	CO 3	CLO 11	ACS010.11
31.	Define alarm	The alarm function	Remember	CO 3	CLO 12	ACS010.12

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
	system call?	allows us to get a timer that will expire at a specified time in the future. When the timer expires, the SIGALRM signal is generated				
32.	Define pause system call?	pause() causes the calling process (or thread) to sleep until a signal is delivered that either terminates the process or causes the invocation of a signal-catching function. Returns: 1 with errno set to EINTR	Remember	CO 3	CLO 12	ACS010.12
33.	What is Abort system call?	abort function causes abnormal program termination. void abort(void); This function never returns.	Remember	CO 3	CLO 12	ACS010.12
34.	What is System command?	system() is used to invoke an operating system command from a C program. #include <stdlib.h> int system(const char *cmdstring);	Remember	CO 3	CLO 12	ACS010.12
35.	What are Process attributes?	The process ID or PID: a unique identification number used to refer to the process. The parent process ID or PPID: the number of the process (PID) that started this process. Terminal or TTY: terminal to which the process is connected.	Remember	CO 3	CLO 11	ACS010.11
36.	What are Process states in Linux:	Running: Process is either running or ready to run Interruptible: a Blocked state of a process and waiting for an event or signal from another process Zombie: process terminated, but information is still there in the process table.	Remember	CO 3	CLO 11	ACS010.11
37.	What is UNIX process hierarchy?	Every process in UNIX (except one) has a parent processes may create many children (via fork()) example:	Remember	CO 3	CLO 11	ACS010.11

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		the UNIX boot procedure				
UNIT-IV						
1.	What Is Semaphone?	A semaphore is a counter used to provide access to a shared data object for multiple processes.	Remember	CO 4	CLO 12	ACS010.12
2.	What Is Ipc?	Inter Process Communication. IPC is used to pass information between two or more processes	Remember	CO 4	CLO 12	ACS010.12
3.	How Do You Execute One Program From Within Another?	By calling system call fork() to create child process which handles the other.	Remember	CO 4	CLO 12	ACS010.12
4.	What Is Daemon?	The processes like vhand, bdflush, sched are housed in kernel file or /unix system which are known as daemons. These files run in the background withoutusers request. These are created when the system boots up and remains active till it shut down or hang. These are not linked to any user or any terminal .We can't kill a daemon.	Remember	CO 4	CLO 12	ACS010.12
5.	What do you mean by "unicast" and "multicast" IPC?	In distributed computing, two or more processes engage in IPC using a protocol agreed upon by the processes. A process may be a sender at some points during a protocol, a receiver at other points. When communication is from one process to a single other process, the IPC is said to• be a unicast, e.g.,Socket communication. When communication is from one process to a group	Remember	CO 4	CLO 13	ACS010.13

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		of processes, the IPC is said to• be a multicast, e.g., Publish/Subscribe Message model.				
6.	Write operations provided in IPC?	Receive ([sender], message storage object) Connect (sender address, receiver address), for connection-oriented communication. Send ([receiver], message) Disconnect(connection identifier), forconnection-oriented communication.	Remember	CO 4	CLO 13	ACS010.13
7.	What is event synchronization ?	Inter-process communication may require that the two processes synchronize their operations One side sends, and then the other receives until all data has been sent and received. Ideally, the send operation starts before the receive operation commences	Understand	CO 4	CLO 12	ACS010.12
8.	What is pipe?	• Uni-directional • Stream based • No name, so only related processes can access • System call to create pipe is pipe() • System calls to read and write are read() and write()	Remember	CO 4	CLO 13	ACS010.13
9.	How can a parent and child process communicate?	pipes, sockets,• message queues,• shared memory)• special ways to communicate that take advantage of their relationship as a parent and child.• One of the most obvious is that the	Remember	CO 4	CLO 13	ACS010.13

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		parent can get the exit status of the child.				
10.	What is named pipe?	• Uni-directional • Stream based • Identified with name, so independent processes can access • System call to create FIFO is open() • Pipe and FIFO differs only in the way they are created • After creation, pipe and FIFO are identical • System calls to read and write are read() and write()	Understand	CO 4	CLO 12	ACS010.12
11.	What is message queue?	A message queue is a linked list of messages stored within the kernel and identified by a message queue identifier.	Remember	CO 4	CLO 13	ACS010.13
12.	Write the syntax of ftok()?	#include <sys/ipc.h> key_t ftok(const char *path, int id); Returns: key if OK, (key_t)-1 on error	Remember	CO 4	CLO 13	ACS010.13
13.	Write the syntax of msgget()?	#include <sys/msg.h> int msgget(key_t *key, int flag); Returns: message queue ID if OK, -1 on error	Remember	CO 4	CLO 13	ACS010.13
14.	Write the syntax of msgctl()?	#include <sys/msg.h> int msgctl(int *msqid, int cmd, struct msqid_ds *buf); Returns: 0 if OK, -1 on error	Remember	CO 4	CLO 13	ACS010.13
15.	Write the syntax of semget()?	#include <sys/sem.h> int semget(key_t *key, int nsems, int flag); Returns: semaphore ID if OK, -1 on error	Remember	CO 4	CLO 13	ACS010.13
16.	What Is Semaphone?	A semaphore is a counter used to provide access to a shared data	Remember	CO 4	CLO 13	ACS010.13

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		object for multiple processes.				
17.	What Is Ipc?	Inter Process Communication. IPC is used to pass information between two or more processes	Remember	CO 4	CLO 13	ACS010.13
18.	How Do You Execute One Program From Within Another?	By calling system call fork() to create child process which handles the other.	Remember	CO 4	CLO 12	ACS010.12
19.	What Is Daemon?	he processes like vhand, bdflush, sched are housed in kernel file or /unix system which are known as daemons. These files run in the background without users request. These are created when the system boots up and remains active till it shut down or hang. These are not linked to any user or any terminal .We can't kill a daemon.	Remember	CO 4	CLO 12	ACS010.12
20.	What do you mean by "unicast" and "multicast" IPC?	In distributed computing, two or more processes engage in IPC using a protocol agreed upon by the processes. A process may be a sender at some points during a protocol, a receiver at other points. When communication is from one process to a single other process, the IPC is said to be a unicast, e.g., Socket communication. When communication is from one process to a group of processes, the IPC is said to be a multicast, e.g., Publish/Subscribe Message model.	Remember	CO 4	CLO 12	ACS010.12
21.	Write operations provided in IPC?	Receive ([sender], message storage object) Connect (sender address, receiver address), for connection-oriented communication.	Remember	CO 4	CLO 13	ACS010.13

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		Send ([receiver], message) Disconnect (connection identifier), forconnection-oriented communication.				
22.	What is event synchronization ?	Inter-process communication may require that the two processes synchronize their operations One side sends, and then the other receives until all data has been sent and received. Ideally, the send operation starts before the receive operation commences	Understand	CO 4	CLO 13	ACS010.13
23.	What is pipe?	• Uni-directional • Stream based • No name, so only related processes can access • System call to create pipe is pipe() • System calls to read and write are read() and write()	Remember	CO 4	CLO 13	ACS010.13
24.	How can a parent and child process communicate?	pipes, sockets, message queues, shared memory special ways to communicate that take advantage of their relationship as a parent and child.One of the most obvious is that the parent can get the exit status of the child.	Remember	CO 4	CLO 13	ACS010.13
25.	What is named pipe?	• Uni-directional • Stream based • After creation, pipe and FIFO are identical	Understand	CO 4	CLO 14	ACS010.14
26.	Define process pipes	Process piping means piping systems and their component parts, that are not building services or power piping systems, and that may be installed in petroleum refineries, chemical, pharmaceutical, textile, paper, semiconductor,	Remember	CO 4	CLO 14	ACS010.14

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		and cryogenic plants, and related processing plants and terminals.				
27.	What are the uses of semaphores?	semaphores are a technique for coordinating or synchronizing activities in which multiple processes compete for the same operating system resources. Semaphores are commonly use for two purposes: to share a common memory space and to share access to files.	Remember	CO 4	CLO 15	ACS010.15
28.	State malloc.	The malloc() function allocates size bytes and returns a pointer to the allocated memory ....1 function allocates memory for an array of nmemb elements of size bytes each and returns a pointer to the allocated memory. The memory is set to zero.	Remember	CO 4	CLO 12	ACS010.12
29.	Define relloc.	The malloc() function allocates size bytes and returns a pointer to the allocated memory .... block pointed to by ptr to size bytes. 'control' has no meaning or relevance.	Remember	CO 4	CLO 12	ACS010.12
30.	Define calloc	The free() function frees the memory space pointed to by ptr, which must have been returned by a previous call to malloc(), calloc() or realloc().....................calloc() function allocates memory for an array of nmemb elements of size	Remember	CO 4	CLO 12	ACS010.12
31.	List the file locking mechanisms?	Two Types of Linux File Locking File locking is a mechanism which allows only one process to access a file at any specific time. By using file locking mechanism, many processes can read/write a single file	Remember	CO 4	CLO 12	ACS010.12

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		in a safer way.				
32.	What is shared memory?	Shared memory is a feature supported by UNIX System V, including Linux, SunOS and Solaris. One process must explicitly ask for an area, using a key, to be shared by other processes. This process will be called the server. All other processes, the clients, that know the shared area can access it.	Remember	CO 4	CLO 16	ACS010.16
33.	Define message queues	A message queue is a linked list of messages stored within the kernel and identified by a message queue identifier. A new queue is created or an existing queue opened by msgget().	Remember	CO 4	CLO 13	ACS010.13
34.	What is a process?	Unix / Linux - Processes Management. A process, is an instance of a running program. The operating system tracks processes through a five-digit ID number known as the pid or the process ID. Each process in the system has a unique pid.	Remember	CO 4	CLO 12	ACS010.12
35.	Define pipe system call?	pipe() is a system call that facilitates inter-process communication. It opens a pipe, which is an area of main memory that is treated as a "virtual file". The pipe can be used by the creating process, as well as all its child processes, for reading and writing.One process can write to this "virtual file" or pipe and another related process can read from it.	Remember	CO 4	CLO 13	ACS010.13
		UNIT-V				
1.	What is TCP?	TCP provides connections between	Understand	CO 5	CLO 18	ACS010.18

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		clients and servers. A TCP client establishes a connection with a given server, exchanges data with that server across the connection, and then terminates the connection.				
2.	What is UDP?	The User Datagram Protocol (UDP) provides a connectionless service. Connectionless means that a communication session between hosts is not established before exchanging data.	Understand	CO 5	CLO 19	ACS010.18
3.	What is socket?	A socket pair uniquely identifies every TCP connection on a network. The two values that identify each endpoint, an IP address and a port number, are often called a socket	Remember	CO 5	CLO 17	ACS010.18
4.	What is Socket Address Structure?	Most socket functions require a pointer to a socket address structure as an argument. Each supported protocol suite defines its own socket address structure. The names of these structures begin with sockaddr_ and end with a unique suffix for each protocol suite	Understand	CO 5	CLO 17	ACS010.18
5.	What is Port? numbers	A port is an application-specific or process-specific software construct serving as a communications endpoint in a computer's host operating system.

A port is 16-bit integer associated with an IP | Remember | CO 5 | CLO 17 | ACS010.18 |

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		address of the host.				
6.	What is little-endian byte order	The low-order byte at the starting address, known as little-endian byte order	Remember	CO 5	CLO 17	ACS010.18
7.	What is big-endian byte order	The high-order byte at the starting address, known as big-endian byte order	Remember	CO 5	CLO 17	ACS010.18
8.	What is htons()	Host to Network Short	Remember	CO 5	CLO 17	ACS010.18
9.	What is bind system call?	bind a name to a socket #include <sys/types.h> #include <sys/socket.h> int bind(int sockfd, const struct sockaddr *addr, socklen_t addrlen);	Remember	CO 5	CLO 18	ACS010.18
10.	What is socket system call?	create an endpoint for communication #include<sys/types.h> #include <sys/socket.h> int socket(int domain, int type, int protocol);	Remember	CO 5	CLO 18	ACS010.18
11.	What is send system call?	send, sendto, sendmsg - send a message on a socket #include <sys/types.h> #include <sys/socket.h> int send(int *socket_descriptor*, char *buffer*, int *buffer_length*, int *flags*)	Remember	CO 5	CLO 19	ACS010.18
12.	What is socket pair system call?	socketpair - create a pair of connected sockets. #include <sys/types.h> #include <sys/socket.h> int socket(int family, int type, int protocol); // socket function call return fd	Remember	CO 5	CLO 19	ACS010.18

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
13.	What is recv system call?	recv, recvfrom, recvmsg - receive a message from a socket #include <sys/types.h> #include <sys/socket.h> int recv(int *socket_descriptor*, char *buffer*, int *buffer_length*, int *flags*)	Remember	CO 5	CLO 19	ACS010.18
14.	What is shutdown system call?	shutdown - shut down part of a full-duplex connection	Remember	CO 5	CLO 19	ACS010.18
15.	What is listen system call?	listen - listen for connections on a socket #include <sys/socket.h> int listen(int sockfd, int backlog); Returns:0 if OK, -1 on error	Remember	CO 5	CLO 19	ACS010.19
16.	What is a socket?	Sockets are communication points on the same or different computers to exchange data.	Remember	CO 5	CLO 18	ACS010.18
17.	What are the operating systems give support to Linux?	Sockets are supported by Unix, Windows, Mac, and many other operating systems.	Remember	CO 5	CLO 17	ACS010.17
18.	What is the use of socket?	A Unix Socket is used in a client-server application framework. A server is a process that performs some functions on request from a client.	Remember	CO 5	CLO 17	ACS010.17
19.	List the types of sockets?	There are four types of sockets available to the users. 1.Stream Sockets 2.Datagram Sockets 3.Raw Sockets 4.Sequenced Packet Sockets	Remember	CO 5	CLO 17	ACS010.17
20.	What is the function of socket?	The socket() function shall create an unbound socket in a communications domain, and return a file descriptor that can be used in later function calls that operate on sockets. Specifies the	Remember	CO 5	CLO 17	ACS010.17

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		communications domain in which a socket is to be created. type. Specifies the type of socket to be created.				
21.	Give the syntax of socket system call?	Socket ( ) system call The system call socket ( ) creates the end point for communication and returns a descriptor. Synopsis of function is: #include <sys/types.h> #include <sys/socket.h> int socket (int domain, int type, int protocol);	Remember	CO 5	CLO 18	ACS010.18
22.	List the attributes in socket address functions	int socket (int domain, int type, int protocol);	Remember	CO 5	CLO 17	ACS010.17
23.	What is the type attribute in socket system call?	The type indicates types of sockets as follows: SOCK_STREAM – It is a connection oriented bye stream. Data transmission is reliable and flexible. SOCK_DGRAM – It supports datagram with connection less protocol. Message transmission is unreliable.	Remember	CO 5	CLO 17	ACS010.17
24.	What does the socket() return?	The socket() function shall create an unbound socket in a communications domain, and return a file descriptor that can be used in later function calls that operate on sockets.	Remember	CO 5	CLO 18	ACS010.18
25.	What is connection oriented protocol in Linux?	SOCK_STREAM provides for TCP reliable connection-oriented communications.	Remember	CO 5	CLO 18	ACS010.18
26.	What is connection less protocol in Linux?	SOCK_DGRAM for UDP connectionless communication.	Remember	CO 5	CLO 19	ACS010.19
27.	What is socket API in Linux?	Berkeley sockets is a Unix application programming interface (API) for Internet sockets and Unix	Remember	CO 5	CLO 17	ACS010.17

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		domain sockets, used for inter-process communication (IPC). It is commonly implemented as a library of linkable modules.				
28.	What is the difference between close() and shutdown()?	Generally the difference between close() and shutdown() is: close() closes the socket id for the process but the connection is still opened if another process shares this socket id. The connection stays opened both for read and write, and sometimes this is very important. shutdown() breaks the connection for all processes sharing the socket id. Those who try to read will detect EOF, and those who try to write will reseive SIGPIPE, possibly delayed while the kernel socket buffer will be filled.	Remember	CO 5	CLO 19	ACS010.19
29.	What Are Socket Exceptions?	socket exceptions do not indicate that an error has occured. Socket exceptions usually refer to the notification that out-of-band data has arrived. Out-of-band data (called "urgent data" in TCP) looks to the application like a separate stream of data from the main data stream.	Remember	CO 5	CLO 17	ACS010.17
30.	What is the difference between connected and unconnected sockets?	If a UDP socket is unconnected, which is the normal state after a bind() call, then send() or write() are not allowed, since no destination address is available; only send to() can be used to send data.	Remember	CO 5	CLO 20	ACS010.20

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		Calling connect() on the socket simply records the specified address and port number as being the desired communications partner.				

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