Unit-1 Introduction to UNIX operating system

Answer in short

- 1. What is a System call? How it differ from concept of function?
- 2. Who are principal designer of UNIX operating system?
- 3. Name 10 popularly used shell in UNIX operating system.
- 4. Who display prompt on terminal?
- 5. Differentiate between Multitasking & Multiprogramming.
- 6. Write a command to list all files including hidden files of working directory.
- 7. What is the difference in output of command: echo * and echo '*'.
- 8. Where the kernel does permanently resides?
- 9. Identify options and arguments for command *Is I a x**
- 10. List the four major system calls used for process management.
- 11. Comment on the output of a command *Is | wc –I*
- 12. Identify differences, if any, between *echo* * and *Is* command?
- 13. What will be the output of *echo echo '*'* and *echo echo ** commands?
- 14. Write appropriate command to merge content of two files x1 and x2 into x3.
- 15. Find errors (if any) otherwise write output or interpretation of following commands.
 - 1. cat 1944
 - 2. pwd ~
 - 3. echo \$\$
 - 4. cp f1 f2 f3
 - 5. cd ~
 - 6. cd .. (Assume your working directory is root.)
 - 7. echo "Unix is a portable OS" | cut -f4 -d' '
- 16. What can be probable states of a process if currently process is in Running state?
- 17. When a process move from user mode to kernel mode?
- 18. Which environment variable is responsible to determine search path for command submitted for execution?
- 19. In which directory system profile is available? What is the name of system profile?
- 20. What is the purpose of /lost+found directory?
- 21. What does /proc director consists of?
- 22. How I can change my shell prompt to display my user-id as well as system date?
- 23. Which environment variable is used to tell the shell what directories to search when a command is entered?
- 24. Which command (other than editor) is useful to create a file?
- 25. Which environment variable is useful to change shell prompt?
- 26. What type of error message you will get when you try to change to a directory for which you don't have read permission?
- 27. How relative path differ from absolute?
- 28. Is priority of background and foreground process is same in the beginning?
- 29. How you can terminate (i.e. kill) a process?
- 30. Write another to carry out functionality of *Is –I x1.c; echo \$?* Command.
- 31. Which concept is useful when we would to take output of a one command as input to another command?
- 32. What are the probable return value of pipe() system call?
- 33. Which type of operator is useful when we want to carry out conditional execution of

commands?

- 34. How you can avoid creating a process for command execution when it is to be executed from shell prompt?
- 35. What does directory file contain?
- 36. How default file permissions can be set?
- 37. In which header file, you will find limit on creation of maximum number of semaphore?
- 38. Which system is used to perform operations on semaphore?
- 39. Which command is used to know the information of existing (i.e. already created) semaphore?
- 40. Which concept will be useful to extract part of data from a given files?
- 41. Under which situation uniq command will not work?
- 42. Which process generate login prompt?
- 43. Is there any process in the system whose PID is 0 (i.e. zero)?
- 44. How to display value of 10th positional parameter?
- 45. Write a command to display number of users whose user-id begins with character m.
- 46. Write a command to display only user-id and login time in the descending order of login time.

47. Is there any information which is display by both ps and who command?

Long Questions

- 1. Explain features of Unix system.
- 2. Why Unix is more portable than other operating systems?
- 3. Why Unix is more secure Operating system?
- 4. Describe process states & state transition.
- 5. Write a short-note on system structure.
- 6. Differentiate between User mode & Kernel mode.
- 7. Why are many Unix commands designed to perform simple rather than complex tasks?
- 8. Explain shell as a command interpreter.
- 9. Describe the block diagram of system kernel.
- 1. In user mode, a process can directly access hardware? If not, why? If yes, how?
- 10. Why are the directories /bin and /usr/bin usually found first in the output of echo \$PATH?
- 11. By giving appropriate example, show how multitasking can be achieved in Unix.
- 12. List at least 5 different ways to display 1st line of a given file.
- 13. How Full duplex concepts in pipe is differs from Half duplex?
- 14. What are limitations of pipe for solving IPC problems?
- 15. Explain system calls related to semaphore.
- 16. Differentiate between grep and egrep utility.
- 17. Under which situations semaphore is better compared to pipe?
- 18. Is it possible to filter last few (e.g. n) lines using head command? If so, explain giving example. If not by head then explain how you can do?
- 19. Discuss booting sequence.
- 20. Discuss command line parameter.
- 21. Discuss structure of /etc/passwd file.

Choose correct options.

- 1. Which one among the below translate Unix commands into action?
 - a) Shell b) Kernel c) Command Interpreter d) System call
- 2. Which one among the below interacts between user and kernel?
- a) Shell b) Kernel c) Both a) and b) d) System call

3.	Which one among below directly interacts with the hardware?
	a) Shell b) Kernel c) Compiler d) Both b) and c)
4.	Which one among below is not an example of a shell file?
_	a) bas b) sh c) ksh d) csh
5.	Which directory is responsible for storing frequently used commands?
6	a) /etc b) /lost+found c) /bin d) /usr/bin
6.	which one among below is faise with respect to Unix operating system?
	a) Only considered each and every thing as a me.
	c) File and process are two basic entities that supports LINIX system
	d) Several user can use the system simultaneously
7.	Which one among below can be used to count the number of files in a directory?
	a) $ s-l wc - l$ b) cat * $ wc - l$ c) $ s-a wc - w$ d) $ s-a wc - l$
8.	Which one among below match exactly three characters file name?
	a) *** b) *? c) ??? d) [???]
9.	Which one among below shell do not support similar type of syntax support in shell
	programming?
	a) Bourne b) Korn c) C d) Bourne Again
10.	When fork() call is executed successfully, it returns
	a) 0 in a process in which it was executed.
	b) 0 to a child process of a process in which it was executed.
	c) 0 to a parent process of a process in which it was executed.
11	d) Negative integer constant in a process in which it was executed.
11.	a) Each process has a unique PID
	h) The PID is always non-negative
	c) waitpid() call also returns the termination status of the child to parent.
	d) Each process has common data segment.
12.	The command used to display file name and its i-node number is
	a) ls –a b) ls –l c) ls –i d) ls –li
13.	Majority part of Unix operating system is written using
	a) Assembly language b) C language c) Java language d) C++ language
14.	Who is main contributor for development of Linux?
	a) Ken Thomson b) Linux Smith c) Linus Torvalds d) Dennis Richi
15.	Which one among below is the input redirection character?
	a) > b) >> c) < d)!
16.	Which command is useful to change priority levels of a process?
17	a) ps b) nice c) Kill d) Job
17.	a) grep b) awk c) cut d) sed
18	Which one among below meta character is used to indicate the beginning of the line?
10.	a) $(a + b) (a + b) ($
19.	Which one among below is used to check whether the last command has been executed
	successful or not?
	a) \$\$ b) \$# c) \$? d) \$@
20.	The operator used to carry out execution of command2 when command1 failed is
	a) && b) c) d) !

21	. System call used to create a semaphore is
	a) semctl() b) semop() c) semget() d) fork()
22	. Command useful to get list of non-duplicate records is
	a) head b) unique c) uniq d) sed
23	. Which filtering utility also supported by programming?
	a) head b) uniq c) grep d) awk
24	Which filtering utility does not allow to define regular expression concept?
	a) grep b) awk c) sed d) cut
25	. Which filtering utility allow to filters records based on field number?
	a) grep b) awk c) sed d) head
26	which command will display login time also.
	a) ps b) who c) set d) ls
State v	our choice: True or False.
,	
1.	All UNIX commands must be in lower case.
2.	There can be multiple kernel and shells running on your system.
3.	Kernel directly interacts with shell.
4.	Shell is a command interpreter.
5.	User can directly contact to kernel.
6.	The fork() system call create PCB data structure.
7.	The ls command displays all file name and directories.
8.	The ps command shows only the process running in the system.
9.	According to Dennis Ritchie. UNIX written in higher level language was major disadvantage for
5.	reducing speed in computing.
10	Unix was developed in SPARC laboratories
11	Unix support row devices also
12	Unix is a portable operating system.
13	POSIX is a set of standard interfaces for Unix.
14	Output redirection can send output to printer also
15	A hard link is another name for a file.
16	. To achieve multitasking. Unix also use concept of time slicing.
17	Redirecting background process output to a file is good way to avoid interference with
	foreground output.
18	File descriptor 2 is used for standard output.
19	File descriptors existing with parent process are also available to its child process.
20	. There is a limit on creating number of semaphore.
21	semctl() call is used to create semaphore.
22	head command can also be used as an alternative to tail command.
23	getty process is responsible for creating shell process.
24	who command can be used to know on which terminal user is working.
Place t	he correct word in the given blank.
1	The is the core of the UNIX Operating System
2	The Bourne shell is represented by
3	Usually all shells are located (i.e. available) in directory
4	A process put itself to
5.	UNIX was developed by and at AT&T Bell Laboratories.

- 6. A process in UNIX system can execute in two modes ______ or _____.
- 7. The Bourne shell, developed by ______ at Bell Laboratories.
- 8. The errors defined in <errno.h> is divided in two categories: ______ and _____.
- 9. _____ is the user ID used for superuser.
- 10. _____ directory contains system profile.
- 11. Name of user profile is ______.
- 12. _____ directory contains commands usually used by system administer.
- 13. ______ environment variable is used to change shell prompt.
- 14. _____ concept takes the output of a command and uses it as an argument for another command.
- 15. ______ special variable contains the PID of its own process?
- 16. _____ command is used to whether expression evaluated successfully or not.
- 17. _____ file contains CPU details.
- 18. ______ file descriptor is used for standard error.
- 19. _____ is one of the form of IPC.
- 20. _____ command is used to remove semaphore.
- 21. _____ command use line (i.e. record) number to filter records from given text file.
- 22. _____ command is useful to know the file size.