



Maratha Vidya Prasarak Samaj's

Rajarshi Shahu Maharaj Polytechnic, Nashik

Udoji Maratha Boarding Campus, Near Pumping Station, Gangapur Road, Nashik-13.

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*Subject: - Open Source Operating
System and Scripting Languages
(22522)*



SYLLABUS

Chapter No.	Name of chapter	Marks With Option
1	Features Of Linux Operating System	20
2	Linux Commands And Utilities	22
3	Shell Programming	24
4	Basic Linux System Administration	20
5	Basic Network Management	18
6		
7		
8		
9		
10		
Total Marks: -		104



BOARD THEORY

PAPER PATTERN

FOR LOS (22522)

Q.1		Attempt any FIVE	5*2=10
	A.	Basic Linux System Administration	
	B.	Features Of Linux Operating System	
	C.	Shell Programming	
	D.	Shell Programming	
	e)	Linux Commands And Utilities	
	f)	Basic Linux System Administration	
	g)	Basic Network Management	
Q.2		Attempt any THREE	3*4=12
	A.	Basic Linux System Administration	
	B.	Shell Programming	
	C.	Linux Commands And Utilities	
	D.	Features Of Linux Operating System	
Q.3		Attempt any THREE	3*4=12
	A.	Linux Commands And Utilities	



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	B.	Basic Linux System Administration
	C.	Basic Network Management
	D.	Linux Commands And Utilities
Q.4		Attempt any TWO 2*6=12
	A.	Features Of Linux Operating System
	B.	Linux Commands And Utilities
	C.	Shell Programming
	D.	Basic Linux System Administration
	e)	Basic Network Management
Q.5		Attempt any TWO 2*6=12
	A.	Features Of Linux Operating System
	B.	Linux Commands And Utilities
	C.	Shell Programming
Q.6		Attempt any TWO 2*6=12
	A.	Basic Network Management
	B.	Basic Linux System Administration
	C.	Shell Programming



CLASS TEST - I

PAPER PATTERN

COURSE: - Open Source Operating System and Scripting Languages (22522)

PROGRAMME: - Information Technology

Syllabus: -

Unit No.	Name of the Unit	Course Outcome (CO)
1	Features Of Linux Operating System	CO-522.01
2	Linux Commands And Utilities	CO-522.02
3	Shell Programming	CO-522.03

Q.1	Attempt any FOUR 4*2=8Marks	Course Outcome (CO)
A.	Features Of Linux Operating System	CO-522.01
B.	Linux Commands And Utilities	CO-522.02
C.	Shell Programming	CO-522.03
D.	Features Of Linux Operating System	CO-522.01
e)	Linux Commands And Utilities	CO-522.02
f)	Shell Programming	CO-522.03
Q.2	Attempt any THREE 3*4=12 Marks	
A.	Features Of Linux Operating System	CO-522.01
B.	Linux Commands And Utilities	CO-522.02
C.	Shell Programming	CO-522.03



CLASS TEST - II

PAPER PATTERN

COURSE: - Open Source Operating System and Scripting Languages (22522)

PROGRAMME: - Information Technology

Syllabus: -

Unit No.	Name of the Unit	Course Outcome (CO)
4	Basic Linux System Administration	CO-522.04
5	Basic Network Management	CO-522.05

Q.1	Attempt any FOUR 4*2=8Marks	Course Outcome (CO)
A.	Basic Linux System Administration	CO-522.04
B.	Basic Network Management	CO-522.05
C.	Basic Linux System Administration	CO-522.06
D.	Basic Network Management	CO-522.04
e)	Basic Linux System Administration	CO-522.06
f)	Basic Network Management	CO-522.04
Q.2	Attempt any THREE 3*4=12 Marks	
A.	Basic Linux System Administration	CO-522.06
B.	Basic Network Management	CO-522.05
C.	Basic Linux System Administration	CO-522.04



COURSE OUTCOME

(CO)

COURSE: - Open Source Operating System and Scripting Languages (22522)

PROGRAMME: - Information Technology

CO. NO.	Course Outcome
CO-522.01	Install Linux Operating System
CO-522.02	Use Basic Linux commands and utilities
CO-522.03	Develop Shell Program for solving different problems
CO-522.04	Maintain Linux operating System
CO-522.05	Maintain Linux Network



1. Features of Linux Operating System

Position in Question Paper

Total Marks-20

Q.1. B. 2-Marks.

Q.2. D. 4-Marks.

Q.3. A. 4-Marks.

Q.4. A. 4-Marks.

Q.5. A. 6-Marks.

Descriptive Question

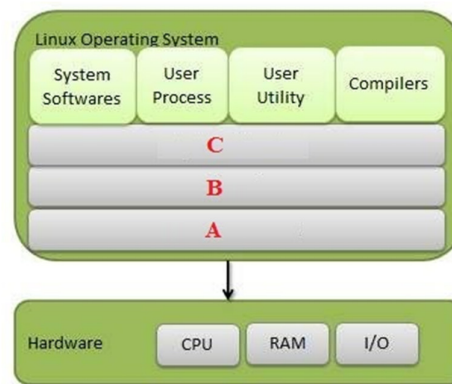
1. Define Context Switch.
2. Describe any four services of Linux.
3. With suitable diagram describe state transition diagram.
4. Describe system run levels in detail
5. Explain system calls.
6. Enlist the features of open source operating systems.
7. Define process.
8. Explain the term shell.

MCQ Question

(Total number of Question=Marks*3=12*3=36)

Note: Correct answer is marked with **bold**.

1. Select the correct option at "A".



- | | |
|--------------------------|---------------------|
| A. Kernel Modules | C. System Libraries |
| B. Kernel | D. Software |
2. Select the option in which space the user application are CANNOT be carried out.
- | | |
|------------------------|---------------|
| A. Kernel Space | B. User Space |
|------------------------|---------------|
3. Identify the option, in which user information is stored and used during booting up of OS.
- | | |
|------------------------|------------------|
| A. /etc/profile | C. /bin/lis |
| B. /boot/os | D. /home/desktop |
4. State the Run Level in which Multi user mode with networking is available.
- | | |
|------|-------------|
| A. 1 | C. 6 |
| B. 2 | D. 3 |
5. Describe the Run Level in which Multi user mode with networking and display manager (graphics) is available.
- | | |
|-------------|------|
| A. 5 | C. 4 |
| B. 3 | D. 2 |
6. Identify the option from the following which is NOT the component of Linux System.
- | | |
|--------------------|---------------------|
| A. Hardware | C. System Libraries |
| B. Kernel | D. System Utilities |
7. Select the option, in which directory removable media is located.
- | | |
|------------------|----------|
| A. /media | C. /srv |
| B. /mnt | D. /home |



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8. Which represents the user home directory
 - A. /
 - B. .
 - C. ..
 - D. ~
9. Any file's attribute information is stored in which structure on the disk
 - A. **Inode**
 - B. Data blocks
 - C. File blocks
 - D. Directory file
10. By default if any regular file is created, the number of link is displayed as 1 ?
 - A. **True**
 - B. False
11. Where can I find the printer in the file structure?
 - A. /etc
 - B. **/dev**
 - C. /lib
 - D. /printer
12. The directory file contains:
 - A. File names & File Sizes
 - B. **File names & Inode Numbers**
 - C. File names & Address
 - D. File names & Permissions
13. Which directory contain device special files?
 - A. /etc
 - B. /etc/dev
 - C. /root/bin
 - D. **/dev**
14. Which of the following is not a valid file type on Linux
 - A. Socket
 - B. Softlink
 - C. **Inode**
 - D. FIFO
15. Which are the two types of device files?
 - A. **Character & Block**
 - B. Character & Socket
 - C. Block & FIFO
 - D. Input & output
16. Which is an example for character special file?
 - A. Hard disk
 - B. CD-ROM
 - C. **Terminal**
 - D. Memory
17. Which is an example for block special file?
 - A. Virtual Terminal
 - B. **CD-ROM**
 - C. Terminal
 - D. Serial modem
18. All device files are stored in which directory?
 - A. /etc
 - B. /bin
 - C. **/dev**
 - D. /usr



19. Which filesystem can be used to change certain kernel parameters at runtime using sysctl command?
- A. Ext3
B. Sysfs
C. Ext4
D. **Procfs**
20. Filesystem for CDROM is:
- A. Ext2
B. Ext3
C. **Isofs**
D. Procfs
21. Which file system has journaling capability?
- A. Ext2
B. **Ext4**
C. Isofs
D. Procfs
22. Which file contains the filesystems to be automatically mounted during boot?
- A. /etc/mount
B. **/etc/fstab**
C. /etc/inittab
D. /etc/boot
23. ____ is a directory (which should exist), on which to mount the file system?
- A. Root
B. Boot
C. **Mount-point**
D. Partition
24. Which is loaded into memory when system is booted?
- A. **Kernel**
B. Shell
C. Commands
D. Script
25. The process of starting up a computer is known as
- A. Boot Loading
B. Boot Record
C. **Boot Strapping**
D. Booting
26. Single user mode shell runs as
- A. Admin user
B. **Root user**
C. Normal user
D. Log user
27. Which is the only partition mounted in Single user mode
- A. boot
B. usr
C. **root**
D. tmp
28. At the end of kernel bootstrap, which process is started?
- A. **/etc/init**
B. /etc/sched
C. /etc/swap
D. /etc/kernel
29. The process id of init process is:
- A. -1
B. 0
C. **1**
D. 2



30. Which file is read by init to get the default runlevel
- A. /etc/profile
B. /etc/init
C. /etc/boot
D. /etc/inittab
31. If a program executing in background attempts to read from STDIN
- A. It is terminated
B. It's execution is suspended
C. STDIN is made available to it
D. None of the mentioned
32. How to run a process in the background?
- A. &
B. *
C. ?
D. |
33. Process information in the current shell can be obtained by using
- A. kill
B. bg
C. fg
D. ps
34. Which signal is sent by the command "kill -9" ?
- A. INT
B. TERM
C. KILL
D. STOP
35. When a child process exits before the parent process exits, which of the following is true:
- A. the child process becomes defunct
B. the parent process becomes defunct
C. **if the parent process does not handle SIGCHLD, the child process becomes a zombie**
D. none of the mentioned
36. The signal sent to a process when the Ctrl-C key is pressed is
- A. KILL
B. TSTP
C. TERM
D. INT



2. Linux Commands and Utilities

Position in Question Paper

Total Marks-22

Q.1. e) 2-Marks.

Q.1. f) 2-Marks.

Q.2. C. 4-Marks.

Q.3. D. 4-Marks.

Q.4. B. 4-Marks.

Q.5. B. 6-Marks.

Descriptive Question

1. With suitable examples differentiate between grep and fgrep commands
2. Write the output for the following command:
 - a) `ls -la`
 - b) `ls -s`
3. Describe cp and mv file handling commands with example
4. Describe working of following command
 - a) `diff file1.txt file2.txt`
 - b) `cmp file1.txt file2.txt`
5. Give chmod commands for performing following task:
 - a) Make 'abc.txt' file read only.
 - b) Change permission of 'abc.txt' file. Give all permissions to user.
 - c) To remove read and write permission for user while accessing 'abc.txt' file.
 - d) Copy permissions of 'abc.txt' file and apply to 'xyz.txt' file.
 - e) Give write permission to user and execute permission for group for accessing 'abc.txt.' file.
 - f) Display permissions of 'abc.txt' file



MCQ Question

(Total number of Question=Marks*3=16*3=48)

Note: Correct answer is marked with **bold**.

1. State the command in Linux OS to e-mail an user .
A. passwd
B. pwd
C. chmod
D. mail
2. Describe the command in Linux OS to view calendar
A. **cal**
B. bc
C. echo
D. pwd
3. Describe the command in Linux OS to change the file permission.
A. **chmod**
B. bc
C. echo
D. pwd
4. Describe the purpose of pwd command in Linux OS.
A. **To view the current working directory**
B. to change the password of the user
C. To change the directory
D. To add new directory
5. Validate the Statement- " Touch command is use to create DIRECTORY"
A. TRUE
B. FALSE
6. Explain how to change the current working directory.
A. **use cd command**
B. use pwd command
C. use path command
D. use touch command.
7. State the command in Linux OS to see files and directories in the current directory.
A. **ls**
B. pwd
C. chmod
D. mail
8. State the command in Linux OS to change the password of user.
A. **passwd**
B. pwd
C. chmod
D. change
9. Which command is used to set terminal IO characteristic?
A. tty
B. ctty
C. pty
D. stty
10. Which command is used to record a user login session in a file?
A. macro
B. read
C. **script**
D. none of the mentioned
11. Which command is used to display the operating system name?
A. Os
B. unix
C. kernel
D. uname



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12. Which command is used to display the unix version
- A. **uname -r**
 - B. `uname -n`
 - C. `uname -t`
 - D. `kernel`
13. Which command is used to print a file
- A. `print`
 - B. `Ptr`
 - C. `Lpr`
 - D. none of the mentioned
14. Using which command you find resource limits to the session?
- A. `rlimit`
 - B. **`ulimit`**
 - C. `setrlimit`
 - D. `getrlimit`
15. Which option of `ls` command used to view file inode number
- A. `-l`
 - B. `-o`
 - C. `-a`
 - D. **`-i`**
16. Find `/ -name '*'` will
- A. **List all files and directories recursively starting from /**
 - B. List a file named `*` in `/`
 - C. List all files in `/` directory
 - D. List all files and directories in `/` directory
17. Which command creates an empty file if file does not exist?
- A. `cat`
 - B. **`touch`**
 - C. `ed`
 - D. `read`
18. Which option of `rm` command is used to remove a directory with all its subdirectories
- A. `-b`
 - B. `-o`
 - C. `-p`
 - D. **`-r`**
19. Which command is used to identify file type?
- A. `Type`
 - B. **`File`**
 - C. `Finfo`
 - D. `Info`
20. Command used to determine the path of an executable file is
- A. **`which`**
 - B. `where`
 - C. `wexec`
 - D. `what`
21. Which of the following command output contains userid?
- A. `ls`
 - B. `help`
 - C. `date`
 - D. **`ls -l`**



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22. Which command is used to display all the files including hidden files in your current and its subdirectories ?
- A. **ls -aR** C. ls -R
B. ls -a D. ls -l
23. pwd command displays
- A. user password C. **present working directory**
B. password file content D. none of the mentioned
24. Which of the following commands can be used to change default permissions for files and directories at the time of creation
- A. Chmod C. **Umask**
B. Chown D. Chgrp
25. Which of the following commands will allow the user to search contents of a file for a particular pattern
- A. touch C. find
B. **grep** D. ls
26. Write the command to display the current date in the form dd/mm/yyyy.
- A. **date +%d/%m/%Y** C. date +%d/%m/20%y
B. date +%d/%m/%Y" D. date +%d/%m/20%y"
27. Which command gives the first byte where the difference is in the file1 & file2?
- A. diff C. comm
B. **cmp** D. ls -a
28. What communication command provides communication to another user logged on by writing to the bottom of their terminal?
- A. **talk** C. chat
B. write D. transmit
29. Which screen manipulation command sets the screen back to normal?
- A. tput cup C. **tput rmso**
B. tput smso D. tput blink
30. Which command is used to set limits on file size
- A. fsize C. **ulimit**
B. flimit D. usize
31. Which option of rmdir command will remove all directories a, b, c if path is a/b/c
- A. -b C. **-p**
B. -o D. -t



32. Executing the 'cd ..' command when at the root level causes
- A. Error message indicating the user can't access beyond the root level
 - B. Behavior is unix-flavor dependent
 - C. Results in changing to the 'home' directory
 - D. **Nothing happens**
33. How do you rename file "new" to file "old"?
- A. **mv new old**
 - B. move new old
 - C. cp new old
 - D. rn new old
34. What command is used to copy files and directories?
- A. copy
 - B. **cp**
 - C. m
 - D. cpy
35. When mv f1 f2 is executed which file's inode is freed?
- A. f1
 - B. **f2**
 - C. new inode will be used
 - D. no inode is freed
36. Which command is used to change permissions of files and directories?
- A. mv
 - B. chgrp
 - C. **chmod**
 - D. set
37. Which of the following statement is true?
- A. The cp command will preserve the meta data of the file
 - B. The sort command by default sorts in the numeric order
 - C. **The mv command will preserve the meta data of the file**
 - D. The command ps will display the filesystem usage
38. What UNIX command is used to update the modification time of a file?
- A. time
 - B. modify
 - C. cat
 - D. **touch**
39. A user does a chmod operation on a file. Which of the following is true?
- A. The last accessed time of the file is updated
 - B. The last modification time of the file is updated
 - C. **The last change time of the file is updated**
 - D. None of the mentioned
40. What is the command to set the execute permissions to all the files and subdirectories within the directory /home/user1/direct
- A. chmod -r +x /home/user1/direct
 - B. **chmod -R +x /home/user1/direct**
 - C. chmod -f -r +x /home/user1/direct
 - D. chmod -F +x /home/user1/direct



41. Given the command
 \$ chmod o-w datafile
- A. sets write permission to everyone for datafile
 - B. sets write permission to others for datafile
 - C. clears write permission to everyone for datafile
 - D. **clears write permission to others for datafile**
42. If you are a root user, how can you grant execute permission only for the owner of the file project1 ?
- A. chmod +x project1
 - B. **chmod u+x project1**
 - C. chmod a+x project1
 - D. chmod U+X project1
43. What does chmod +t do?
- A. wrong syntax
 - B. set effective userid for filename
 - C. set effective groupid for filename
 - D. **set the sticky bit**
44. Which of the following identifiers associated with a process decide its privilege level
- A. uid
 - B. suid
 - C. **euid**
 - D. gid
45. What does the following command do ?
 who | wc -l
- A. **List the number of users logged in**
 - B. List the users
 - C. List the number of users in the system
 - D. Display the content of who command
46. Which command create file `b`
- A. cat < b
 - B. **touch b**
 - C. cat | b
 - D. create b
47. Which command can be used to determine file type by its content?
- A. **File**
 - B. ls -l
 - C. type
 - D. None of the above.
48. Which command can give first found difference between two file after comparing?
- A. Diff
 - B. **Cmp**
 - C. Common
 - D. None of the above.



3. Shell Programming

Position in Question Paper

Total Marks-24

Q.1. C. 2-Marks.

Q.1. D. 2-Marks.

Q.2. B. 4-Marks.

Q.4. C. 4-Marks.

Q.5. C. 6-Marks.

Q.6. C. 6-Marks

Descriptive Question

1. State modes of vi editor.
2. Describe the use of backslash ('\') with example
3. Describe any four shell variables with its use.
4. Compare between C shell and Korn shell
5. Write a shell script to accept a number from user and calculate sum of digits of entered number. (Hint: number=123. Sum of digit 1+2+3=6)
6. Write a shell script to accept two numbers from user.
Calculate and display addition, subtraction,
multiplication, division of entered number using choice
entered by user. (Hint: Use case statement)
7. Write a shell script to display number from 1 to 20.
8. Write shell script to find if number is even or odd.



MCQ Question

(Total number of Question=Marks*3=18*3=54)

Note: Correct answer is marked with **bold**.

1. Explain the purpose of sh command in Linux OS.
 - A. **it is the shell prompt.**
 - B. it is used to create directory
 - C. it is use to share file
 - D. it is use to shut down the machine
2. Explain how to enter into the insert mode to start typing data in a file using vi editor.
 - A. **press i**
 - B. press ESC
 - C. press :
 - D. press q
3. Validate the Statement- " It is necessary to keep extension .sh for shell programming file."
 - A. **True**
 - B. False
4. State the output of following command, \$ fruit= apple \$echo " I eat \$fruit"
 - A. I eat \$fruit
 - B. **I eat apple**
 - C. I eat fruit
 - D. error
5. Explain how to create directories like d5, d6, d7, d8, d9
 - A. mkdir d56789
 - B. **mkdir d{5..9}**
 - C. mkdir d 5..9
 - D. mkdir d5-6-7-8-9
6. Describe which argument parameter holds the command and file while passing parameter in command line shell program.
 - A. **\$0**
 - B. \$1
 - C. \$2
 - D. \$3
7. State which of the following is NOT a mode of vi editor.
 - A. Command Mode
 - B. Escape Mode
 - C. Insert Mode
 - D. **Write mode**
8. Explain how to save and quit a file in vi editor.
 - A. **:wq**
 - B. :q!
 - C. :sq
 - D. :q
9. Describe the purpose of tee command.
 - A. **it will save the output of the command in a file as well as display the output on screen.**
 - B. it will save the output of the command in a file only
 - C. it will display the output on screen.
 - D. it will NOT save the output of the command in a file as well as NOT display the output on screen.



20. What is the command to count the number of characters in a file?
- A. grep
B. wc
C. count
D. cut
21. Which among the following is used to write small programs to control Linux functionalities ?
- A. Shell Commands
B. Shell Script
C. C
D. Java
22. Which command is used to set limits on file size ?
- A. ulimit
B. alimit
C. dlimit
D. wlimit
23. Which command is used to copy files ?
- A. cp
B. copy
C. mv
D. move
24. How many links are created when we create a directory file ?
- A. 1
B. 2
C. 3
D. 4
25. If two files on same partition point to the same inode structure they are called ?
- A. Soft links
B. Hard links
C. Copy links
D. Similar links
26. printer in the file structure can be found in ?
- A. /etc
B. /html
C. /www
D. /dev
27. Which LINUX command is used to update the modification time of a file ?
- A. UPDATE
B. MODIFY
C. TOUCH
D. UNTOCUH
28. vi editor commands are not case sensitive.
- A. True
B. False
29. In vi editor which command sets the number for all lines ?
- A. :set nu
B. :set ni
C. :set sn
D. :set sl
30. All the abbreviations in vi editor can be shown by ?
- A. all
B. ab
C. ashow
D. atat
31. Which command reads the content of another file in vi editor ?
- A. erd
B. ex
C. r
D. read



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32. Which command in vi editor command is used to copy the current line of the file ?

- A. ys
B. yc
C. yy
D. yw

33. In the shell, by default, all variables are considered and stored as ?

- A. integer
B. string
C. float
D. chracter

34. Which option of "grep" displays the line number as well ?

- A. -n
B. -l
C. -d
D. -al

35. What is the command that can print lines of first file matching with second file ?

- A. printline
B. cmp
C. com
D. comm

36. Which command is used to record a user login session in a file ?

- A. script
B. session
C. record
D. copy

37. Which of following command of ls will help to view inode number ?

- A. -i
B. -s
C. -j
D. -k

38. How many times below program will print hello?

```
main()  
{  
    fork();  
    fork();  
    fork();  
    printf("hello");  
}
```

- A. 3
B. 6
C. 8
D. 9

39. What is maximum filename size in Linux in bytes?

- A. 32
B. 64
C. 128
D. 255

40. What does fork system call return to parent process on success?

- A. 0
B. 1
C. -1
D. Child process id



41. The command 'umask -S'

- A. **prints the current mask using symbolic notation**
- B. prints the current mask using octal numbers
- C. sets the mask to 000
- D. sets the mask to 777

42. After running this program, as you press 's', what will be the output of the program?

```
1.  #!/bin/bash
2.  echo "press 's' to print Sanfoundry"
3.  read var
4.  if $var=s
5.  then
6.  echo "Sanfoundry"
7.  else
8.  echo "You did not press s"
9.  fi
10. exit 0
```

- A. Sanfoudry
- B. You did not press s
- C. **Program will generate an error message**
- D. None of the mentioned

43. After running this program, as your press 4, what will be the output of the program?

```
1.  #!/bin/bash
2.  echo "How many times you want to print 'Sanfoundry'"
3.  read value
4.  for ((i=0;i<$value;i++))
5.  do
6.  echo "Sanfoundry";
7.  done
8.  exit 0
```

- A. **'Sanfoudry' will print 4 times**
- B. 'Sanfoudry' will print 3 times
- C. 'Sanfoudry' will print 5 times
- D. Program will generate an error message



45. What is the output of this program?

```
1.  #!/bin/bash
2.  for i in 2 3 7
3.  do
4.  echo "Sanfoundry"
5.  done
6.  exit 0
```

A. **'Sanfoundry' will print 3 times**

B. Nothing will print

C. Program will generate an error message

D. None of the mentioned

46. How can you come out of the loop in this program?

```
1.  #!/bin/bash
2.  read x
3.  while [ $x != "hello" ]
4.  do
5.  echo "Try to come out of the loop"
6.  read x
7.  done
8.  echo "Welcome"
9.  exit 0
```

A. **by entering "hello"**

B. by entering anything except "hello"

C. it is not possible

D. none of the mentioned

47. What is the output of this program?

```
1.  #!/bin/bash
2.  echo "Which file do you want to check"
3.  read x
4.  until [ -e $x ]
5.  do
6.  echo "The file does not exist. Do you want to create? y/n"
7.  read a
8.  if [ $a = y ]; then
9.  touch $x
10. echo "Your file has been created successfully."
11. fi
12. done
13. echo "The file is present in this directory"
14. exit 0
```

A. it checks the existance of your entered file in the present working directory

B. it creates the file if file does not exists

C. program runs untill you create the file

D. **all of the mentioned**



48. In vi editor, the key combination CTRL+f
- A. **moves screen down one page**
 - B. moves screen up one page
 - C. moves screen up one line
 - D. moves screen down one line
49. Which command is used to close the vi editor?
- A. q
 - B. wq
 - C. **both q and wq**
 - D. none of the mentioned
50. Which one of the following statement is not true?
- A. vim editor is the improved version of vi editor
 - B. **vi editor commands are not case sensitive**
 - C. vi editor has two modes of operation: command mode and insert mode
 - D. vi stands for visual editor
51. Which command is used to delete the character before the cursor location in vi editor?
- A. **X**
 - B. x
 - C. D
 - D. d
52. Which command searches the string in file opened in vi editor?
- A. / or ?
 - B. f or F
 - C. t or T
 - D. none of the mentioned
53. After running this program, if you enter 1000, then what will be the output of the program?
- ```
1. #!/bin/bash
2. echo "Please enter a number"
3. read a
4. if [$a -lt 100]; then
5. echo "It is less than 100";
6. elif [$a -lt 1000]; then
7. echo "It is less than 1000"
8. else
9. echo "It is greater than 1000"
10. fi
11. exit 0
```
- A. **It is greater than 1000**
  - B. It is less then 1000
  - C. It is equal to 1000
  - D. None of then mentioned
54. Which command runs the shell built-in command 'command' with the given argument?
- A. **builtin**
  - B. caller
  - C. there is no command present for this purpose
  - D. none of the mentioned



## 4. Basic Linux System Administration

---

**Position in Question Paper**

**Total Marks-20**

Q.1. A. 2-Marks.

Q.2. A. 4-Marks.

Q.3. B. 4-Marks.

Q.4. D. 4-Marks.

Q.6. B. 6-Marks.

---

### Descriptive Question

1. State any two commands for managing disk space and also state their use.
2. Describe working of RAID 0 and RAID 1 with suitable diagram
3. Write commands to perform following task:
  - a) Display all files starting with character 'a' and any two characters after it.
  - b) To move all the files having prefix as 'abc' to directory 'student'.
  - c) To display all files with names ending with 'st.sh'
  - d) To display all files starting with any of these characters [abcd].
4. Write steps to acquire super user status (using two methods).
5. Compare between cpio and tar commands. (Any 6 points)
6. Describe the responsibilities of system administrator.
7. Explain the procedure to change the user password.



## MCQ Question

(Total number of Question=Marks\*3=14\*3=42)

Note: Correct answer is marked with **bold**.

1. Identify which of the following is not a valid run-level.  
A. 5  
B. 0  
C. **8**  
D. 1
2. Describe Single user mode shell runs as  
A. Admin user  
B. **Root user**  
C. Normal user  
D. Log user
3. Interpret the process id of init process.  
A. -1  
B. 0  
C. **1**  
D. 2
4. Interpret User's Primary Group id (PID. is listed in which file, at the time of creation of the user.  
A. **/etc/passwd**  
B. /etc/groups  
C. /etc/login  
D. /etc/profile
5. Describe where the encrypted password of a user is stored in.  
A. **/etc/shadow**  
B. /etc/enpasswd  
C. /etc/.passwd  
D. /etc/passwd
6. State the command can be used to change the user password.  
A. can't change the password  
B. **passwd**  
C. passd  
D. pwd
7. State the command can be executed by a user who is already logged into the system, in order to change to the root user.  
A. **su**  
B. root  
C. chroot  
D. user
8. Interpret the command used to view the disk usage within a directory.  
A. df  
B. **du**  
C. mkfs  
D. fsck
9. State the command for backup.  
A. bckup  
B. trap  
C. ciop  
D. **cpio**
10. Describe option for restoring files in tar command.  
A. -a  
B. -c  
C. -v  
D. **-x**



11. State the command used for creating a new group  
A. chgrp  
B. chown  
C. addgrp  
**D. groupadd**
12. Describe the for adding a new user to the system  
A. grpadd  
**B. useradd**  
C. uadd  
D. adduser
13. Interpret command used by the administrator to modify some parameters of existing users  
A. userdel  
B. userchange  
C. useradd  
**D. usermod**
14. Describe the command to perform copying of diskettes  
A. pp  
B. df  
C. du  
**D. dd**
15. State the RAID type doesn't use parity for data protection.  
**A. RAID 1**  
B. RAID 4  
C. RAID 6  
D. RAID 5
16. Which command is used to display disk consumption of a specific directory  
A. **du**  
B. ds  
C. dd  
D. dds
17. Which command is used to perform backup in unix?  
A. backup  
B. **cpio**  
C. zip  
D. gzip
18. Which commands will give you information about how much disk space each file in the current directory uses?  
A. ls -l  
B. ls -la  
C. **du**  
D. ls -a
19. If a file is removed in Unix using 'rm' then  
A. The file can be recovered by a normal user  
**B. The file cannot be recovered by a user**  
C. The file can be fully recovered provided the system is not rebooted  
D. The file will be moved to /lost+found directory and can be recovered only by administrator's intervention
20. Which command is used to check filesystem usage in a system?  
A. mount  
B. **df**  
C. du  
D. dd
21. Which among the following allows fast file system recovery?  
A. Ext2  
**B. Journaling**  
C. Caching  
D. Sysfs



22. Which command is used to mount file system read only.
- A. mount -a  
B. mount -v  
C. mount -f  
D. **mount -r**
23. Which of the following is not a valid run-level
- A. S  
B. 0  
C. **8**  
D. 1
24. Bootstrapping is also known as
- A. Quick boot  
B. **Cold boot**  
C. Hot boot  
D. Fast boot
25. Single user mode shell runs as
- A. Admin user  
B. **Root user**  
C. Normal user  
D. Log user
26. Which daemon manages the physical memory by moving process from physical memory to swap space when more physical memory is needed.
- A. Sched daemon  
B. **Swap daemon**  
C. Init daemon  
D. Process daemon
27. Which command can be executed by a user who is already logged into the system, in order to change to the root user? (type the command without any parameters)
- A. **su**  
B. root  
C. chroot  
D. user
28. Process information in the current shell can be obtained by using
- A. kill  
B. bg  
C. fg  
D. **ps**
29. Which signal is sent by the command "kill -9" ?
- A. INT  
B. TERM  
C. **KILL**  
D. STOP
30. When a child process exits before the parent process exits, which of the following is true:
- A. the child process becomes defunct  
B. the parent process becomes defunct  
C. **if the parent process does not handle SIGCHLD, the child process becomes a zombie**  
D. none of the mentioned
31. What is the command to change the group ownership of a file?
- A. cgrp  
B. **chgrp**  
C. change  
D. group



32. Which of the following command display the disk consumption of any directory?
- A. du** **C. dd**  
**B. ds** **D. dds**
33. Which command is used to take the backup in Unix?
- A. backup** **C. zip**  
**B. cpio** **D. gzip**
34. What is the command to determine the path of an executable file?
- A. which** **C. wexec**  
**B. where** **D. what**
35. Which of the following commands displays user id in its output?
- A. ls** **C. date**  
**B. help** **D. ls -l**
36. Which of the following commands will display all the files in your current directory and its subdirectories including the hidden files?
- A. ls -aR** **C. ls -R**  
**B. ls -a** **D. ls -l**
37. Which of the following commands can be used to change default permissions for files and directories at the time of creation?
- A. chmod** **C. umask**  
**B. chown** **D. chgrp**
38. Which of the following options when used with tar command displays the list of files in a tape archive format?
- A. cvf** **C. xvf**  
**B. tvf** **D. ovf**
39. What control character signals the end of the input file ?
- A. ctrl + s** **C. ctrl + w**  
**B. ctrl + z** **D. ctrl + d**
40. Which command in LINUX is used for description of any command ?
- A. help** **C. detail**  
**B. man** **D. shortdetal**
41. Which command is concerned with LINUX kernel log messages ?
- A. dmsg** **C. cmsg**  
**B. dmesg** **D. cmesg**
42. Default permissions of a file can be changed with ?
- A. group** **C. chmod**  
**B. chperm** **D. chall**



# 5. Basic Network Management

---

**Position in Question Paper**

**Total Marks-18**

**Q.1. g) 2-Marks.**

**Q.3. C. 4-Marks.**

**Q.4. e) 4-Marks.**

**Q.6. A. 6-Marks**

---

## Descriptive Question

1. Write any two advantages and disadvantages of NFS (Network File System).
2. Explain the use of Crontab program in Linux
3. Describe use of following commands with example:
  - a) ping
  - b) Netstat
4. Describe generic firewall configuration with suitable diagram
5. Write procedure to configure TCP/IP settings. Also state the use of IP address, subnet mask, default gateway and DNS server
6. Write the procedure to configure DHCP server and client.
7. Describe the use of tcpdump command.
8. Explain in brief Tripwire.
9. Describe NIS.





## MCQ Question

(Total number of Question=Marks\*3=10\*3=30)

Note: Correct answer is marked with **bold**.

- Interpret the utility used to change the IP address of a network interface
  - ipconfig
  - ifconfig**
  - hostname
  - netstat
- State PING
  - Packet InterNet Groper**
  - Protocol InterNet Groper
  - Packet InterNet Group
  - Protocol InterNet Group
- State the size of an IP address in IPv6.
  - 32 bits
  - 64 bits
  - 128 bits**
  - 265 bits
- Describe the use of Ping command.
  - To test a device on the network is reachable**
  - To test a hard disk fault
  - To test a bug in a Application
  - To test a Pinter Quality
- Describe DHCP
  - Dynamic Host Configuration Protocol**
  - Digital Host Configuration Protocol
  - Dynamic Host Configuration Process
  - Digital Host Control Process
- Interpret which server/ service is must for sharing file between heterogeneous platform (like between Linux and windows)
  - SAMBA**
  - NFS
  - DHCP
  - TCP
- Describe NFS.
  - Network File System**
  - Network Failure System
  - Network File Server
  - Network Failure Server
- Interpret the command used to manipulate TCP/IP routing table
  - route**
  - Ipconfig
  - Ifconfig
  - Traceroute
- State the command for viewing the status of all service.
  - service --status-all**
  - service --view
  - service --check
  - check –service
- Which of the following commands can be used to copy files across systems?
  - ssh
  - telnet
  - rsh
  - ftp**



11. Which command will you use to see the available routes?
  - A. show route
  - B. route status
  - C. **netstat -r**
  - D. none of the mentioned
12. Which one of the following linux file system does not support journaling feature?
  - A. **ext2**
  - B. ext3
  - C. ext4
  - D. none of the mentioned
13. Which one of the following is not a valid state of a thread?
  - A. running
  - B. **parsing**
  - C. ready
  - D. blocked
14. The register context and stacks of a thread are deallocated when the thread?
  - A. **Terminates**
  - B. blocks
  - C. unblocks
  - D. spawns
15. Thread synchronization is required because \_\_\_\_\_
  - A. all threads of a process share the same address space
  - B. all threads of a process share the same global variables
  - C. all threads of a process can share the same files
  - D. **all of the mentioned**
16. Termination of the process terminates \_\_\_\_\_
  - A. first thread of the process
  - B. first two threads of the process
  - C. **all threads within the process**
  - D. no thread within the process
17. The jacketing technique is used to \_\_\_\_\_
  - A. **convert a blocking system call into non blocking system call**
  - B. create a new thread
  - C. communicate between threads
  - D. terminate a thread
18. Lp0 device file is used to access?
  - A. Tape Drive
  - B. **Printer**
  - C. Floppy
  - D. Mouse
19. Which among following is considered as super daemon ?
  - A. sysinit
  - B. grep
  - C. **init**
  - D. locate
20. Which command gives the first byte where the difference is in the file1 & file2 ?
  - A. diff
  - B. differ
  - C. **cmp**
  - D. compare



21. printer in the file structure can be found in ?  
A. /etc  
B. /html  
C. /www  
D. /dev
22. Which is not a valid file type in LINUX ?  
A. Socket  
B. FIFO  
C. Softlink  
D. Inode
23. All device files are stored in which directory ?  
A. /etc  
B. /dev  
C. /www  
D. /html
24. Which one of the following error will be handled by the operating system?  
A. power failure  
B. lack of paper in printer  
C. connection failure in the network  
D. all of the mentioned
25. To access the services of the operating system, the interface is provided by the \_\_\_\_\_?  
A. System calls  
B. API  
C. Library  
D. Assembly instructions
26. Which directory contains configuration files in Linux?  
A. /etc/  
B. /bin/  
C. /dev/  
D. /root/
27. Maximum number of processes in Linux is  
A. 32768  
B. 1024  
C. 2048  
D. 16384
28. GRUB stands for \_\_\_\_\_.  
A. Grand Unified Boot Loader  
B. Gentoo's Regular Booter  
C. Great Unix Boot Loader  
D. GNU Released Unix Booter
29. SSH stands for \_\_\_\_\_.  
A. Security Shell  
B. Synchronous Shell  
C. System Shell  
D. Secure Shell
30. 'mkfs' is used to:  
A. create a filesystem on a device (such as a hard disk partition)  
B. format a floppy disk  
C. create a fast changing section on a hard disk  
D. create a named pipe (fifo) on a device