

**BACHELOR OF COMPUTER APPLICATION**  
**Fifth Semester**  
**LINUX & SHELL PROGRAMMING**  
**(BCA - 21)**

**Duration: 3Hrs.**

**Full Marks: 70**

Part-A (Objective) =20  
Part-B (Descriptive) =50

**(PART-B: Descriptive)**

**Duration: 2 hrs. 40 mins.**

**Marks: 50**

**Answer any *five* of the following questions:**

1. Describe the architecture of UNIX operating system, with all its modules. Discuss briefly UNIX file system structure. (5+5=10)
2. What is a process? What are the various states of a process? Explain different process communication techniques. (2+3+5=10)
3. What are the basic functions of shell? Explain the different types of shells used in UNIX OS. Write a shell script to convert an inputted length from kilometer to meters. (3+3+4=10)
4. What is IP address and its class? Give example of each class. Give the maximum number of host allows in each class. (2+5+3=10)
5. Explain the following: (2.5×4=10)
  - a. Super block
  - b. Boot Block
  - c. Inode
  - d. fsck

6. Explain various commands available in UNIX for taking backups. Explain three important options of TAR. (5+5=10)
7. Define *grep*. Briefly explain the difference between *fgrep*, *egrep* with examples. Write a shell script to find factorial of a given number. (5+5=10)
8. Answer the following: (3+4+3=10)
- Describe in detail the boot process of any Linux system.
  - How does the inode map to data block of a file?
  - Describe how would you find files in Linux using 'find' command.

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**Duration: 20 minutes**

**Marks – 20**

**(PART A- Objective Type)**

**I. State true or false:**

**1×6=6**

- Linux is open source operating system.
- The *kill* command is used to shut-down the operating system.
- In Red-Hat based linux system *yum* is the default installer.
- TCP command is used to set IP addresses.
- GNOME is a graphical and KDE is a command base interface.
- rm abc* will remove the directory abc and all its contents.

**II. Fill in the blanks:**

**1×6=6**

- Metadata of a file is stored in its \_\_\_\_\_.
- \_\_\_\_\_ command is used to change the permissions of a file.
- PCB stands for \_\_\_\_\_.
- head -n -5 abc.txt* will display \_\_\_\_\_.
- \_\_\_\_\_ command is used to check the connectivity between two hosts.
- A shell script must have \_\_\_\_\_ permission.

**III. Choose the correct answer:**

**1×8=8**

- What will be the output of the following command?  
*echo "The process id is" \$\$\$*
  - The process id is \$\$
  - The process id is \$<pid>\$<pid>
  - The process id is <pid><pid>
  - The process id is \$\$\$

- b. How do you print the lines between 5 and 10, both inclusive?
- A. `cat filename | head | tail -6`
  - B. `cat filename | head | tail -5`
  - C. `cat filename | tail +5 | head`
  - D. `cat filename | tail -5 | head -10`
- c. The 'logout' command is used to
- A. shutdown the computer
  - B. logoff of the computer
  - C. logout the current user
  - D. to exit the current shell
- d. Which command puts a script to sleep until a signal is received?
- A. `sleep`
  - B. `suspend`
  - C. `disown`
  - D. `break`
- e. Which command is used to remove the read permission of the file 'note' from both the group and others?
- A. `chmod go+r note`
  - B. `chmod go+rw note`
  - C. `chmod go-x note`
  - D. `chmod go-r note`
- f. Which of the following files will displayed by this command `cat *ch*`?
- A. `patch`
  - B. `catch`
  - C. `.ch`
  - D. All of the above
- g. Which of the following is not a communication command?
- A. `write`
  - B. `mesg`
  - C. `mail`
  - D. None of the above
- h. Create a new file "new.txt" that is a concatenation of "file1.txt" and "file2.txt"
- A. `cp file.txt file2.txt new.txt`
  - B. `cat file1.txt file2.txt > new.txt`
  - C. `mv file[12].txt new.txt`
  - D. `ls file1.txt file2.txt | new.txt`

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