



**MAULANA ABUL KALAM AZAD UNIVERSITY OF  
TECHNOLOGY, WEST BENGAL**

**Paper Code : BCA-502**

**UNIX AND SHELL PROGRAMMING**

*Time Allotted : 3 Hours*

*Full Marks : 70*

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own  
words as far as practicable.*

**GROUP - A**

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives for any *ten* of the  
following : 10 × 1 = 10

- i) \$\$ represents
  - a) number of arguments specified in command line
  - b) name of the executed command
  - c) exit status of the last command
  - d) PID of the current shell.

- ii) A file abc contains four columns, Roll No., Name, Marks and Grades. What will be output, if we apply the following command `sort -n -r +2 -3 abc`

It will

- a) sorts all the data
- b) sorts the data in reverse order
- c) numeric sorts in reverse order of the file abc on third column
- d) sorts in numeric reverse order based on only first column.

- iii) Which of the following is a command for searching a pattern

- a) search
- b) find
- c) grep
- d) ps.

- iv) Each entry in inode table is of size

- a) 64 kB
- b) 32 kB
- c) 32 bytes
- d) 64 bytes.

- v) The passwords of UNIX system are stored in the file

- a) /etc/shadow
- b) /etc/usr/password
- c) /etc/passwd
- d) /etc/password.



- vi) The hidden file in UNIX
- a) has a special bit associated with the descriptor
  - b) has names starting with a dot
  - c) can be accessed only by the operating system kernel
  - d) none of these.
- vii) What is the standard file descriptor of the standard output ?
- a) 0
  - b) 1
  - c) 2
  - d) none of these.
- viii) To display the unique lines after sorting we use
- a) sort file1 file2
  - b) sort - file1
  - c) sort -u -o file1 file2
  - d) sort -o file1 file2.
- ix) The command `cut -f2, 8 - d": "file 1` would output
- a) The fields 2 to 8 from file 1 where delimiter between fields is :
  - b) The fields 2 to 8 from file 1 including the delimiter : between fields
  - c) The columns 2 to 8 from file 1 with : between each column
  - d) None of these.

- x) In UNIX, mounting a file system means
  - a) Copying all the files from one file system to another
  - b) Moving all the files from one file system to another
  - c) Loading a file system from backup medium like tape
  - d) Providing a link to the file system to be mounted so that it appears as a local sub-directory.
- xi) The UNIX command 'rm -r project' will
  - a) delete the file project from the current directory
  - b) delete all the files from the directory project
  - c) recursively deletes the directory project and all its sub-directories
  - d) none of these.

**GROUP - B**

**( Short Answer Type Questions )**

Answer any *three* of the following.  $3 \times 5 = 15$

2. What is relative and absolute permission ? Explain with example. Where the GID (both the number and name) is stored ? 4 + 1



3. Write a shell script to check whether an integer is prime or not.
4. What is i-node ? What does it contain ? 1 + 4
5. What does the fork system call do ? What does it return ? 3 + 2
6. Write short notes on the following UNIX commands with different options :  $1\frac{1}{2} + 1\frac{1}{2} + 2$ 
  - a) Date
  - b) Who
  - c) Passwd.

#### GROUP - C

##### ( Long Answer Type Questions )

Answer any *three* of the following.  $3 \times 15 = 45$

7. a) Briefly explain the features of UNIX Operating System ?
- b) What is absolute and relative path ? Explain with example.
- c) What are the security levels available in UNIX ?
- d) What is filter ? Is it possible to append contents using cat command ? How to display the 5<sup>th</sup> to 10<sup>th</sup> line of a file f1 ? How to open the last modified file in vi editor ?  $4 + 4 + 3 + 1 + 1 + 1 + 1$

8. a) Name five administrative functions that cannot be performed by a general user ?
- b) What are the commands used by system administrator to create, modify and delete user accounts ? Give example.
- c) What is the difference between su and su-aloke ?
- d) What are activities performed by shutdown command ?
- e) What are block and character devices ?
- f) What are the different run levels in UNIX ?

2 + 2 + 2 + 4 + 2 + 3

9. a) Differentiate between Multiprogramming and Multitasking.
- b) What is the difference between the following vi commands ?
- (i) : w (ii) : q! (iii) : wq (iv) zz.
- c) What do you mean by link of a file ? What is symbolic link ? Why is it needed ?

5 + 4 + (2 + 2 + 2)

10. a) What is unique command ? Explain with example.
- b) Arrange the data of a file in ascending and descending orders.



- c) Write a shell script to check whether a file is readable, writable or executable.
- d) Explain the command to print all characters in a file.  $4 + 4 + 5 + 2$

11. Write short notes on any *three* of the following :  $3 \times 5$

- a) hard link and Soft link
  - b) Internal and external commands
  - c) Mounting and Un-Mounting partitions
  - d) Unmask and chmod.
  - e) gzip and gunzip.
-