

Name :

Roll No. :

Invigilator's Signature :

CS/BCA/SEM-5/BCA-502/2010-11

2010-11

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 the following :

10 × 1 = 10

- i) What does kill \$! do ?
- a) Kills all processes spawned by user
 - b) Kills all background processes
 - c) Kills the most recent background processes
 - d) Kills the oldest background process.

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ii) The command for deleting a directory which is not empty is

- a) rmdir
- b) rm - r
- c) rm*
- d) rm - rd.

iii) To see the last access time of various files in a file system the command is

- a) ls - lu
- b) ls - l
- c) ls - lat
- d) ls - mt.

iv) The command cal j 1997 would give the output as

- a) the calendar of January, June and July 1997
- b) only calendar of January 1997
- c) an error
- d) none of these.

v) Each entry in inode table is of size

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

- vi) The command `cut -f 2, 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.
- vii) The UNIX command `"a.out / &"` runs the program `a.out`
- a) with highest priority
 - b) in the background
 - c) only when no other process is running on the system
 - d) none of these.
- viii) 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.

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- ix) 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.
- x) \$? represents
- a) number of arguments specified in command line
 - b) name of executed command
 - c) exit status of last command
 - d) none of these.

GROUP - B

(Short Answer Type Questions)

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

2. What are the similarities between thread and process ?
3. What are the different kinds of threads ?
4. What is the functionality of kernel in UNIX architecture ?

5. What does "bulk loading of a table" mean ? Indicate advantages and disadvantages of using these features.
6. Briefly explain three phases involved in process creation.

GROUP - C

(Long Answer Type Questions)

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

7. Write the commands for the following : 5×3
 - a) To list find the records of a file containing 10 different strings
 - b) To convert a general file to a hidden file
 - c) To select the lines that have exactly two characters using grep command.
 - d) To find the 51st record of a file containing 100 records in unit.
 - e) Used for temporary switch user.
8.
 - a) How is a new process in Unix created ? What is the new process called ? Give the syntax of the corresponding system call. What operations are performed by the kernel for this system call ?
 - b) What are file system quotas ?
 - c) What is the special feature of the X window architecture ? What are X widgets ? $7 + 4 + 4$

9. a) What are file access permissions ? How can you change the file access permissions ? Explain.
- b) What is the relationship between the priorities of kernel processes and user processes ? Can a user modify the priorities of kernel processes ?
- c) What are the main functions performed by Unix System Administrator ? 5 + 5 + 5
10. a) Write commands to do the following :
- i) Display the list of users currently logged in along with their count on the terminal.
 - ii) Terminate the last background process without knowing its PID such that it cannot ignore the signal to terminate it.
 - iii) Use the current working directory along with the user name as the prompt.
 - iv) Count the number of files in the directory tree /usr /abc.
 - v) Count the number of blank lines in a file.
- b) Write a crontab entry to execute run.sh script every 30 minutes on every Tuesday, Thursday and Saturday between 9 am to 5 pm. 10 + 5

11. Write short notes on any *three* of the following : 3×5

- a) Directory in Unix
 - b) Domain Names Services (DNS)
 - c) Process Control Block (PCB)
 - d) Unix File system layout.
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