(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 1468 Roll No. | | | | | | | | | | |

MCA

SECOND SEMESTER EXAMINATION, 2005-2006

UNIX AND SHELL PROGRAMMING

Time : 3 Hours *Total Marks : 100*

Note : *(i) Attempt **ALL** questions.*

(ii) All questions carry equal marks.

(iii) In case of numerical problems assume data wherever not provided.

(iv) Write you answer as consiely as possible, consistent with providing a complete answer to the question.

(v) Be precise in your answer.

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1. Attempt ***any four*** parts of the following : **(5x4=20)**

(a) What do you mean by multi-user and multitasking OS ?

(b) Explain in details the Directory entry, inode entry and file contents.

(c) You create a file called myfile in the directory mydir. Later you add new material to myfile. What changes take place in directory, inode and file ? What command would give you read, write and execute permissions, group members read and execute permissions and others just permissions to read the file myfile ?

(d) Explain the UNIX file system.

(e) Which command is used to write in core super block and inode table information to the disk ? Can a file have more then two links ? Can a file have links across the file systems ?

(f) What will be the effect of following UNIX commands :

(i) unmask 022

(ii) ulimit 512

(iii) du../..

(iv) du.

(v) in dir 1 dir 2 (dir 2 is existing on disk)

2. Attempt *any two* parts of the following : **(10x2=20)**

(a) Write a shell script to count and report the number of entries present in each sub-directory mentioned in the path which is supplied as command line argument.

(b) (i) Write a shell program to find the factorial value of any number entered through keyboard.

(ii) Two numbers are entered through keyboard. Write a shell program to find the value of one number raised to the power of another.

(c) Write a shell script which works similar to the following UNIX commands :

head tail more

3. Attempt *any two* parts of the following : **(10x2=20)**

(a) (i) Writ a script that takes a command-line argument (which is a name of a file in the present working directory) and reports on whether it is a directory, a file, or something else.

(ii) Write a script that will check every 30 seconds if a user called "Ramesh" has logged into system. If Ramesh is logged in when the script is first run, the script will terminate, saying "Ramesh is logged in." Otherwise, it will check every 30 seconds to see if Ramesh has logged in, and when has, script will terminate with the same message.

(b) Consider the following script called ***Journal_add***:

```
# journal : add journal entries to a file $HOME/
journal
File = $HOME/journal
date >> $file
echo "Enter name of person or group : \c"
read person
echo "$person" >> $file
echo >> $file
cat >> $file
echo >>" - - - - - - - - - - - - - - - -" >> $file
echo >> $file
```

Add commands to **journal_add** to verify the user has write permissions for a file called **journal** in the user's home directory, if such a file exists. The script should take appropriate actions if a **journal** file exists and the user does not have write permission. Why does the script use **read** the first time it accepts input from the terminal and **cat** the second time ?

(c) Explain the following :

(i) Semaphore

(ii) Pipes

(iii) Socket Programming

4. Attempt *any four* parts of the following : (5x4=20)

(a) Write a shell script to perform the following operations.

(i) Take backup of files in/**usr/cprogs** directory at 6:00 PM every day.

(ii) List all backed up file present on a floppy disk

(b) Outline the jobs of a system administrator.

(c) What is the use of a tar command and how is it different from other UNIX commands ?

(d) Write an interactive shell script which will request the user to put the 1.2 MB floppy in drive A, format it, make a file system on it with 2000 blocks and 500 inodes, mount it at a mount point/**dev/fdd**.

(e) State whether the following statements are True of False

(i) A file can be copied across the two different file systems.

(ii) A file system can be mounted and un-mounted by any user.

(iii) The command/**etc/init 0** halts the system.

(f) Write a shell script to send mail to groups of users by extracting their ID's from/**etc/group** file.

5. Attempt *any four* parts of the following : (5x4=20)

(a) What is the use of Makefile and ***make*** command ?

(b) Write short notes on lint, Source code control System and YACC.

(c) Explain the usage of various debugging tools. What is the use of ***ctrace*** ?

(d) What is the difference between a pipe and redirection operator ?

(e) Write a script called ***del*** which takes a file name as argument and ask you whether you want to delete the file or not.

(f) "UNIX is a multi-user multitasking Operating system". Is it true ? Discuss in details.

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