Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/MCA/SEM-3/MCA-302/2012-13

2012

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 : $10 \times 1 = 10$

   i) What is the binary prepresentation of the permission : `rwxr-xrw-` ?

   a) 656 b) 424

   c) 756 d) 746.

   ii) To change the user ID and the group ID of a file, use

   a) `chmode()` b) `umask()`

   c) `chown()` d) `access()`.

   iii) If you want to quit without saving current work you need to use

   a) `:q!` b) `:q`

   c) `:wq` d) `:wx`.

iv) The UNIX command `rm -r project` will

a) delete the file project from current directory

b) delete all the files from directory project

c) recursively delete the directory project and all its subdirectory

d) none of these.

v) The UNIX command `cp ch ? book`

a) copies all files starting with ch to directory book

b) copies all files with three character names and with ch to directory book

c) compress whether file starting with ch exists in directory book

d) display error message can't copy multiple files.

vi) To copy an entire directory structure, we need

a) `cp - s olddir newdir`

b) `cp -d olddir newdir`

c) `cp -o olddir newdir`

d) `cp -r olddir newdir`.

vii) UNIX allows the use of more than one command in one line by specifying the following symbol among the commands

a) : b) ;

c) | d) >.

viii) What does the redirection symbol "$<$" do ?

a) Redirects standard output

b) Redirects standard input

c) Adds output to the end of the file

d) None of these.

ix) To append *.c* to a variable *x*, you have to use

a) `echo $x.c` b) `echo $x".c"`

c) `echo ${x}.c` d) any of these.

x) The available disk space can be determined under UNIX using the command

a) dir b) du

c) df d) file.

GROUP – B

(Short Answer Type Questions)

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

2. a) What is meant by command substitution ? Explain with the help of an example.

   b) What is meant by daemon process ? Name any two daemon processes. 3 + 2

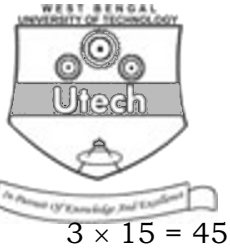
3. a) What do you mean by absolute pathname and relative pathname ?

   b) Is it possible that two files have same *i*-node number ? Justify. 2 + 3

4. How is process created ? Mention briefly the role of the `fork` and `exec` system calls in process creation.

5. Write a shell script to check whether an integer is prime or not ?

6. What does the directory file contain ? What does `cd` do when used without argument ? What is the difference between `who | tee user.1st | wc -1` and `who | tee /dev/tty | wc-1` ? 3 + 2



GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. a) What is *i*-node ? What is the purpose of it ? In what way a programmer can use *i*-node ?

   b) What will be the output of the command cat foo foo foo ?

   c) Explain the role of the set-user-id and sticky bit.

   d) Write a shell script to print only those words of the file FILE, whose beginning and last character are same.

   5 + 1 + 2 + 7

8. a) Write an awk script to find the frequency of words present in the text file MATTER. Print only those words whose frequency is 5 or more.

   b) Write shell script to print given number in reverse order, for example, if number is 123 then it must printed as 321. 8 + 7

9. a) Write a shell script to delete all files in root and its subdirectories having extension 'tmp', which have not been created or referred to in the last 15 days.

   b) Explain the structure of UNIX file system. 7 + 8

10. A file named MARKS consists of name, Marks1, Marks2, Marks3 and Marks4 fields, separated by comma. Print the marks of those whose average marks are equal to or greater than 50%, in descending order of average marks, followed by alphabetical order of name in the following format :

    Sl. No. Name Avg. Marks

    Write the program (shell script or awk script) to accomplish the above task.

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