Name : ……………………………………………………

Roll No. : …………………………………………………

Invigilator's Signature : ………………………………

CS/MCA/SEM-3/MCA-302/2009-10
2009
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) Regular expression not matching either of *a*, *b* or *c* is

    a) ! [*abc*]   b) ^ [*abc*]

    c) [! *a* ! *b* ! *c*]   d) [^*abc*]

    ii) The type of kernel that gets completely copied to the primary memory while booting is called

    a) Micro-kernal

    b) Pseudo-kernal

    c) Monolithic kernal

    d) X-kernal.

iii) Consider the folloiwng code segment :

$x = 10y = 20$

The command to display the product of x and y is

a) expr $x * $y   b) expr $x / * $y

c) echo $x * $y   d) echo $x / * $y

iv) Among the undermentioned utilies faster search is achieved through

a) egrep   b) grep

c) fgrep   d) vgre

v) How do you get all files with r, g or i on the third place ?

a) ls * [rgi]*   b) ls ** [rgi]?

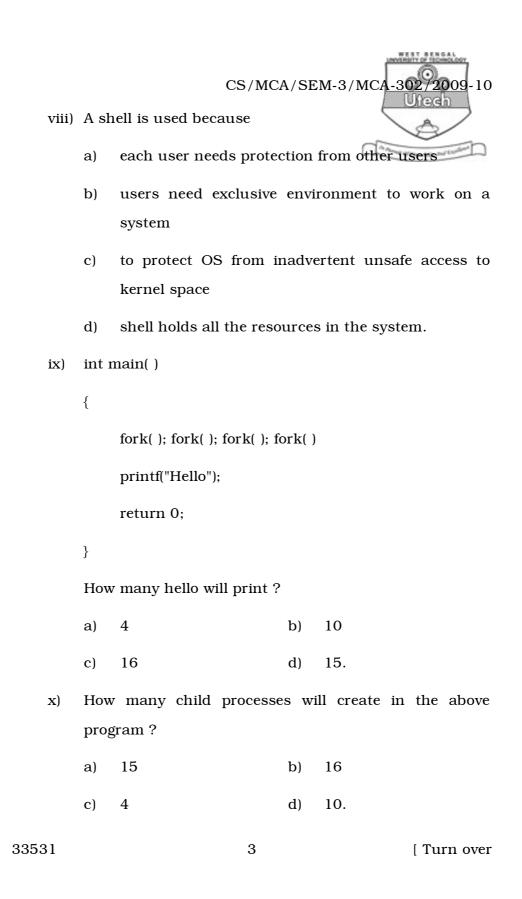c) ls ?? [rgi] *   d) ls [..i *]

vi) How to create a new file without opening it ?

a) Less filename   b) Touch filename

c) Cat filename   d) More filename.

vii) All the contents of a file are stored in

a) data block

b) super block

c) boot block

d) inode block.
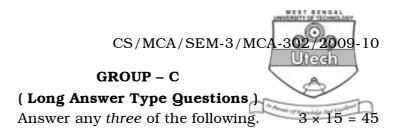
viii) A shell is used because

    a)   each user needs protection from other users

    b)   users need exclusive environment to work on a system

    c)   to protect OS from inadvertent unsafe access to kernel space

    d)   shell holds all the resources in the system.

ix)   int main( )

    {

        fork( ); fork( ); fork( ); fork( )

        printf("Hello");

        return 0;

    }

    How many hello will print ?

    a)   4   b)   10

    c)   16   d)   15.

x)   How many child processes will create in the above program ?

    a)   15   b)   16

    c)   4   d)   10.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following.   3 × 5 = 15

2.   What do you mean by positional parameter ? How do you refer positional parameter within shell scripts ? Give suitable example.   2 + 3

3.   What is *i*-node ? What are the various types of information stored in it ?

4.   a)   What are the differences between absolute path and relative path ?

     b)   What are the different types of shell variables ?   2 + 3

5.   Explain the differences between grep and sed commands in unix.

6.   Write a shell script that displays all the command line arguments passed with the name of program in different lines (1 argument in each line).

GROUP – C

(**Long Answer Type Questions**)

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

7.   a)   Explain 'Booting' process in UNIX O.S.

      b)   What do the terms UID, PID and PPID stand for ? For a currently executing process how can you obtain these values ?

      c)   What is zombie process ?

      d)   What are fork and exec system calls meant for ? How are they different ?   5 + 3 + 2 + 5

8.   a)   Explain internal and external commands in UNIX.

      b)   What are the utilities of environment variables ?

      c)   What are the two ways to specify pattern and action to the awk command ?

      d)   Write a simple awk program that asks for a word and a file name and then tells you the no. of occurrences of that word into that file.

      e)   Write down the significances of any two of the following shell variables

            PS2, TERM, PATH.   2 + 2 + 3 + 6 + 2

9. a) Write a shell script that accepts a username from the user and displayrs all the information about the user from /etc/passwd file in a customized format.

b) Write a shell script that checks the system time and currently logged-in username and wishes him/her "GOOD MORNING" or "GOOD AFTERNOON" according to time. 8 + 7

10. a) What is the use of touch command ?

b) What is a background process ? How can a process be run in background ?

c) Write a shell program to store the names, size, permissions of all the regular files present in the current directory in a file named backup. 2 + 4 + 9

11. a) What are links ? Differentiate between hard links and symbolic links. Differentiate between absolute path and relative path name.

b) Write a shell script to input numbers at command line and print a count of positive and negative numbers entered. (2 + 4 + 4) + 5

12. Answer any *three* of the following :   3 × 5

    a)   Describe internal & external UNIX commands.

    b)   Describe any four shell variables.

    c)   Interpret the following instructions :

        i)   ls – a *

        ii)   cp ?aa * ?ab *

    d)   Explain tar command with example.

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