Z-1468/510

Printed Pages : 4   **MCA – 203**

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

PAPER ID : 1468   **Roll No.** ☐☐☐☐☐☐☐☐☐

M.C.A.

(SEM. II) EXAMINATION, 2006-07
UNIX AND SHELL PROGRAMMING
(SPECIAL EXAMINATION)

Time : 3 Hours]   *[Total Marks : 100*

Notes :   *(1)*   *Attempt all questions*

         (2)   *All questions carry equal marks.*

1   Attempt any **four** parts of the following :   **5×4=20**

     (a)   Draw the block diagram of Unix System Kernel. Expalin various components.

     (b)   Explain the role of File descriptors, File table and Incode table in Unix File System.

     (c)   Explain the function of following with reference to UNIX file system :

         (i)   Boot Block

         (ii)   Super Block

         (iii)   Incode list

         (iv)   Datablocks

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(d) Define a process. Differentiate between sequential and concurrent processes. List the advantages of concurrent execution of processes.

(e) Define Zomble and Orphan processes. Explain process control in Unix.

(f) Explain the task of following commands :
   (i) nice
   (ii) grep
   (iii) ps
   (iv) crontab
   (v) cmp

2 Attempt any **four** parts of the following :   **5×4=20**

(a) Explain the various types of UNIX shells and their characteristics.

(b) Explain :
   (i) Shell metacharacters
   (ii) Shell variables

(c) Write a shell script that prints the current date, your user name and the name of your login shell.

(d) Write a sheel script that creates three background processes, waits for them all to complete, and then displays a simple message.

(e) (i) What is the difference between a built-in command and a utility ?

   (ii) Describe the meaning of terms-parent shell, child shell and subshell.

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(f) Write a shell script to calculate the mean and variance of a given series of number.

3 Attempt any **two** parts from the following : **10×2=20**

(a) Discuss the following IPC (Interprocess   **5+5** Communication Mechanism) -

(i) Message passing

(ii) Pipes (both named and unnamed)

(b) (i) Describe the stages that a client and   **5+5** server go through to establish a connection.

(ii) Explain the following system calls -

(a) Socket

(b) Bind

(c) (i) What is difference between   **2.5×4=10** execu( ) and execup( ) ?

(ii) How can you protect critical code ?

(iii) What is the purpose of process groups ?

(iv) What happens when a writer tries to overflow a pipe ?

4 Attempt any **two** parts of the following :   **10×2=20**

(a) Give the syntax and uses of following   **2×5=10** utilities :

(i) ifconfig

(ii) netstat

(iii) df

(iv) mkfs

(v) cron

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(b) (i) List the sequence of events that occur **6+4** when one turn on the computer.

    (ii) What is the difference between shutdown and halt ?

(c) Write the commands to perform following :

    (i) Add a new entry to the password file.

    (ii) Add a new entry to the group file.

    (iii) Create a home directory for user.

    (iv) Provide the user with some appropriate start-up files.

5 Attempt any **four** parts of the following :   **5×4=20**

(a) Explain the use of make utility with the help of an example.

(b) Explain the utility provided by the Unix for managing and tracking changes to files.

(c) Suppose we want to check a C program for syntax and data type errors. Which Unix utility can be used to display messages that point out, possible problems ? Explain the procedure to use this utility.

(d) Explain the various sections/parts of a lex specification.

(e) Explain Yacc utility.

(f) Explain dbx and adb debuggers.