



Printed Pages : 3

MCA-203

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

PAPER ID : 1468

Roll No.

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M. C. A.

(SEM. II) EXAMINATION, 2007-08

UNIX AND SHELL PROGRAMMING

Time : 3 Hours]

[Total Marks : 100

Note : (i) *Attempt all questions.*

(ii) *All questions carry equal marks.*

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

(a) Explain in brief the architecture of UNIX systems.

(b) Explain the concept of directory structure supported by UNIX.

(c) Discuss in brief the UNIX file system structure.

(d) Define system call. Write some common UNIX system calls. Also give their syntax.

(e) Write an algorithm to convert path name to an Inode number.

(f) Explain the procedure to mount and unmount a file system to the root directory of file system.



Attempt any **four** parts from the following : $5 \times 4 = 20$

- (a) Give some common vi commands.
- (b) An n-digit number is inputted through the keyboard. Write a shell program to check whether it is a prime no. or not. If it is a prime no. find the sum of its digits.
- (c) Write a shell script to implement the binary search algorithm.
- (d) Write a shell script to generate cosine series.
- (e) What debugging features does the C shell provide ?
- (f) Write a shell script to calculate the area and volume of a sphere.

Attempt any **two** parts from the following : $10 \times 2 = 20$

- (a) (i) Explain, how a shell runs a utility. (4+6)
(ii) Define semaphores. Explain the use of pipes and semaphores in IPC.
- (b) (i) Write a program that catches all signals (5+5) sent to it and prints out which signal was sent. Then issue a 'kill-g' command to the process and give result.
(ii) How can a parent find out how its children died ?
- (c) (i) Describe the client-server paradigm. (5+5)
(ii) How IPC (Inter Process communication) is performed using shared memory.

Attempt any **two** parts of the following : $10 \times 2 = 20$

- (a) (i) Describe the tasks that a UNIX system administrator must perform in order to keep a UNIX system running properly. (6+4)
- (ii) Explain the following modes in which a UNIX system usually runs :
- (a) single user mode
- (b) multiuser mode
- (b) Write a shell script to format a floppy, create a file system on it, mount it and copy some files on it. 10
- (c) Explain the syntax and uses of following utilities : 10
- (i) mknod
- (ii) du
- (iii) cpio and tar
- (iv) fsck
- (v) pac.

Attempt any **four** parts of the following : $5 \times 4 = 20$

- (a) Explain the use of CTRACE and STRIP utility.
- (b) Explain the various tools available for text formatting in UNIX.
- (c) Write a program to explain Yacc utility.
- (d) Explain the purpose and use of Lex utility.
- (e) Write a short notes on SCCS utility.
- (f) What is the purpose of using LINT utility ?





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MCA

(SEM. II) EXAMINATION, 2006 - 07

UNIX & SHELL PROGRAMMING

Time : 3 Hours]

[Total Marks : 100

Note : (1) Attempt all the questions.

(2) All questions carry equal marks.

1 Attempt any **four** parts :

- a) Draw the architecture of UNIX system and describe each layer.
- b) What do you mean by sleep and wake up in UNIX?
- c) Write the commands for the following :
 - i) Display the calendar of April 2007.
 - ii) List all processes running on the system.
 - iii) Count the number of words and characters in the file.
 - iv) To find the name of your machine.
 - v) Checking the spelling of the phrase "Hello World"

d) Give the complete syntax of the following commands.

a) *ls*

b) *date*

c) *time*

d) *rm*

e) *mkdir*

e) Write a short note on internal and external commands of UNIX.

f) What are the various methods to get help in UNIX?

2 Attempt any **four** parts :

a) What is the role of Kernel in UNIX operating system? Explain the various features of KERNEL.

b) Write a short note on filing mounting and unmounting in UNIX

c) How do you create a new user account in UNIX considering that you are the administrator? Name this account as ABCXYZ and set its password as NULL VALUE (The user decides the password once s/he logs on for the first time)

d) What are the various security features offered in UNIX? Explain any two in detail.

e) Program a UNIX machine to handle ten logins simultaneously. Name them as mac1, mac2, mac3... mac10. All these login terminals should have the same password as "Spiderman" and access rights should also be similar.

f) Write commands to backup all the data from the account "HELLRAIZER" everyday at 22.30 hrs.

3 Attempt any **two** parts of the following :

- a) Write a short note on language development tools in UNIX.
- b) Describe the following tools troff, nroff, tbi.
- c) Describe SCCS with an example,

Attempt any **four** parts of the following :

- a) Distinguish between Bourne shell, C shell and Korn shell.
- b) Write a short note on arrays in UNIX
- c) Determine what the built-in shell variables are for your account. Which ones are exported?
- d) Write a shell script to print "Hello World" in inverted colours on the screen.
- e) Explain all the decision making statements in details.
- f) How will you repeat the last command in (i) Korn Shell (ii) Bash?

Attempt any **two** parts of the following :

- a) Write a shell script that prints the RAM used by the system.
- b) Write a shell script that gives the memory details of the system.
- c) Explain Multitasking, background processes and child-parent relationship in details.