

MCA-302

UNIX AND SHELL PROGRAMMING

Time Allotted: 3 Hours

Full Marks: 70

The questions are of equal value.

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. Answer all questions. 10×1 = 10
- (i) UNIX supports
- | | |
|-------------------|-------------------|
| (A) multi-tasking | (B) multi-user |
| (C) (A) and (B) | (D) none of these |
- (ii) Super user has the default prompt:
- | | |
|--------|-------------------|
| (A) \$ | (B) # |
| (C) % | (D) None of these |
- (iii) Which command is used for changing permissions?
- | | |
|-----------|------------|
| (A) chper | (B) change |
| (C) chmod | (D) give |
- (iv) p1|p2 will
- | |
|---|
| (A) append standard output of p1 to p2 |
| (B) connect standard output of p2 to p1 |
| (C) connect standard output of p1 to p2 |
| (D) none of these |

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- (v) To append f1 and f2 to end of a file tmp, command is
- (A) cat f1 f2 > tmp (B) cat f1 f2 >> tmp
(C) cat f2 f1 > tmp (D) echo f1 f2 >> tmp
- (vi) Which of the following command is not used for communicating with other users?
- (A) mesg (B) talk
(C) write (D) uucp
- (vii) If umask is set to 777 then what permissions you will get for a newly created directory?
- (A) d----- (B) drwxrwxrwx
(C) d- - x- -x- -x (D) none
- (viii) Super Block contains _____
- (A) its size
(B) how many maximum files it can accommodate
(C) (A) and (B)
(D) none of these
- (ix) Kill command can be
- (A) used by any user to kill one's process
(B) remove any ones file
(C) used by a user to kill his process
(D) none of these
- (x) What is the output of A=ls; echo "\$A"
- (A) A (B) \$A
(C) list of files (D) ls

GROUP B
(Short Answer Type Questions)

Answer any *three* questions.

3×5 = 15

2. (a) What is Operating System? 2
(b) What are two parts of Operating system? 2
(c) What is Critical section? 1
3. (a) What is sticky bit? 2
(b) What is Zombie process? 2
(a) Can two files have same inode number? Explain 1
4. (a) Write a shell script that computes the gross salary of an employee according to the following rules given below. The basic salary is input interactively through the keyboard. 3
If basic salary is < 1500 then HRA = 10% of the basic and DA = 90% of the basic.
If basic salary is ≥ 1500 then HRA = Rs 500 and DA = 98% of the basic
(b) Write a shell script that accepts values from 1 to 6 and displays (a) the list of files in the present working directory if the choice is 1, (b) the current date if the choice is 2, (c) the process status if choice is 3, (d) all the current users of the system if the choice is 4, (e) displays the present working directory if the choice is 5, (f) exits if the choice is 6, and (g) the message "invalid option" and exits if the choice is anything else. 2
5. (a) What is filter? Give an example. 2
(b) What is the difference between > and >> 1
(c) What happens when the following commands are executed? 2
(i) \$cat xy>x (ii) \$cat x>>x
6. (a) What are the different types of files available in UNIX? 2
(b) Define a semaphore 1
(c) What is the functionality of wild card characters? 2

GROUP C
(Long Answer Type Questions)

Answer any *three* questions.

3×15 = 45

7. What is significance of link with respect to File system in UNIX? Explain. Why the default link count for directory file is 2? What are advantages of soft link over hard link and which one is effective? Explain the difference between (i) ls -l and (ii) ls -lt 6+2+6+1
8. What are the different blocks in UNIX file system? Explain. How does UNIX access a file from a directory? Explain with example. A UNIX file system has 2048 bytes block size with 32 bit addressing. The i-node has 10 direct, one indirect and one double indirect address. What is the maximum file size that it can access? 6+4+5
9. (a) Write a shell script to input numbers at command line and print a count of positive and negative numbers entered. 8
- (b) Write a shell script that displays all the command line arguments passed with the name of the program. 7
- 10.(a) What are the two ways to change the permissions associated with a file? Explain with example 7
- (b) Explain with suitable example—"Directory permission is more important than file permission." 8
11. Write short notes on any *three* of the following: 3×5
- (a) grep
 - (b) named pipe
 - (c) uniq
 - (d) Positional parameter
 - (e) Ex mode operations of vi editor