

**SYSTEM ADMINISTRATION USING LINUX
(MCAP 3150)**

Time Allotted : 3 hrs

Full Marks : 70

Figures out of the right margin indicate full marks.

*Candidates are required to answer Group A and
any 5 (five) from Group B to E, taking at least one from each group.*

Candidates are required to give answer in their own words as far as practicable.

**Group - A
(Multiple Choice Type Questions)**

1. Choose the correct alternative for the following: **10 × 1 = 10**
- (i) Which command is used to get the kernel version in Linux?
 (a) uname -r (b) kernel
 (c) uname -n (d) uname -s.
- (ii) Which of the following command is used to see the content of tar (backup.tar) file without extracting it?
 (a) tar -xvf backup.tar (b) tar -svf backup.tar
 (c) tar -tvf backup.tar (d) none of (a), (b) and (c).
- (iii) Which command is used to record session in Linux?
 (a) script (b) session
 (c) both (a) and (b) (d) none of (a) and (b).
- (iv) Which of the following statement is incorrect about /bin and /sbin directory?
 (a) /sbin contain only binaries essential for booting, restoring, recovering, and/or repairing the system in addition to the binaries in /bin
 (b) There is no difference between /bin and /sbin, they are just two directories
 (c) /bin contains commands that may be used by both the system administrator and by users, but which are required when no other file systems are mounted
 (d) Utilities used for system administration are stored in /sbin.
- (v) Which of the following command(s) is/are used to reboot a Linux system?
 (a) shutdown -h (b) reboot
 (c) init 6 (d) all of (a), (b) and (c).
- (vi) Which of the following server is used with bind package?
 (a) httpd (b) shttp
 (c) dns (d) named.

- (vii) Which command is used to show process hierarchy in tree format?
 (a) ps -tree (b) pstree
 (c) ps -t (d) none of (a), (b) and (c).
- (viii) Which command is used to print the login shell of an user?
 (a) echo \$SHELL (b) echo \$LOGIN
 (c) echo \$LSHELL (d) None of (a), (b) and (c).
- (ix) Which of the following command is used to access an SMB share on a Linux system?
 (a) NFS (b) SMD
 (c) smbclient (d) smbserver.
- (x) Which port does squid listen , by default?
 (a) 4322 (b) 2314
 (c) 7334 (d) 3128.

Group - B

2. (a) Explain Linux booting process.
 (b) What is the purpose of grub.conf file in linux? Write the purpose of the following options used in grub.conf file:
 (i) hiddenmenu
 (ii) title
 (iii) default and
 (iv) timeout.
 (c) Explain ext3 file system.
- 4 + (1 + 4) + 3 = 12**
3. (a) Discuss architecture of Linux Operating System. What are different run levels in LINUX? Briefly explain.
 (b) Explain the following:
 (i) boot block
 (ii) data block
 (iii) superblock
 (iv) inode.
- (4 + 4) + 4 = 12**

Group - C

4. (a) State and explain various commands for viewing login and process information.
 (b) Explain the use of tar, finger and nice commands.

- (c) Write the use of /etc/sysconfig/init file.

3 + 6 + 3 = 12

5. (a) Describe advantages of shell script? What does \$ and # refers to in shell scripting?

- (b) Write a shell script to add a new user in your system with following details:

Group name : "MCA"

Login name : "Student"

User name : "heritage"

Default shell : "korn".

(4 + 2) + 6 = 12

Group - D

6. (a) Explain symbolic link and hard link in details.

- (b) Explain basic format of the ping command and top command on Linux with example.

- (c) Explain the method of checking routing information.

3 + (3 + 3) + 3 = 12

7. (a) Explain the duties of system administrator.

- (b) What is a umask? Create a umask that would give no permissions to the group or the world.

- (c) What are the commands used for managing group membership? Write a command for creating two groups and change current group assignment to other existing user.

5 + (1 + 2) + (2 + 2) = 12

Group - E

8. (a) Briefly explain how DHCP server perform dynamic address allocation and define how the various parameters are handled by dhcpd.conf.

- (b) Explain function of firewall in detail with example.

8 + 4 = 12

9. (a) What is use of zone file ? Explain with suitable example.

- (b) Explain the options statement of named.conf file with at least five parameters.

- (c) Explain the purpose of ftpusers and user_list files of ftp.

5 + 3 + 4 = 12