

Name :

Roll No. :

Invigilator's Signature :

CS/MCA/SEM-5/MCA-E-502A/2009-10

2009

SYSTEM ADMINISTRATION AND LINUX

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) A 'kernel module' always begins with
 - a) either the `init_module` or the function you specify with `module_init` call
 - b) the `main()` function
 - c) the `inittab`
 - d) `init`.
- ii) Run level 5 stands for
 - a) Reboot
 - b) Shutdown
 - c) Multiple user mode
 - d) Unused.



- iii) The system call required by UDP socket to read and write is
- a) read() and write()
 - b) fget() and fput()
 - c) send to() and recv()
 - d) puts() and gets().
- iv) Service necessary to setup an 'nfs client' are
- a) portmap, nfslock and nfs
 - b) portmap, nfslock
 - c) nfs
 - d) portmap.
- v) The tar command is used for
- a) backup system
 - b) recovery
 - c) both (a) and (b)
 - d) none of these.
- vi) Difference between DROP and REJECT is
- a) DROP sends a report to sender after blocking
 - b) REJECT sends a report to sender after blocking
 - c) DROP & REJECT are same
 - d) none of these.
- vii) Ping works on which protocol ?
- a) SMTP
 - b) TFTP
 - c) ICMP
 - d) none of these.



viii) Tar-xvf mysrc.tar

Here the option x is for

- a) path name
 - b) compression
 - c) extract
 - d) extra value.
- ix) Uname command used for
- a) check network configuration
 - b) check kernel version
 - c) browse web page
 - d) to know host name.
- x) Dig command used for
- a) check network id
 - b) check DNS packet
 - c) check http server
 - d) none of these.



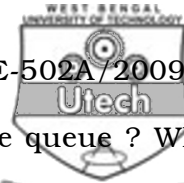
GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following.

3 × 5 = 15

2. What is an incremental backup ? What do you mean by IP filtering ? How can one change lost root password in LINUX ? What is the significance of /etc/fstab ? What is the use of "finger" command with respect to System Administration ?
1 + 1 + 1 + 1 + 1
3. What is the delimiter used in Perl program and how to denote a comment line in it ? What is the advantage of shared memory over message queue ? Differentiate between AF_UNIX domain and IPC programming.
1 + 2 + 2
4. a) What is the importance of /boot partition ?
b) Write a short description on booting process of linux.
1 + 4
5. a) What are the different tables you can handle with iptables command ?
b) Write the rules for the following condition :
 - i) All packets will be dropped coming from 192.18.0.X network.
 - ii) All packets from 172.16.X.X network will be forwarded to eth1 after masquerading.
 - iii) All packets having destination port address 80 will be redirected to 192.168.0.5.2 + 3



6. How can we change a permission of message queue ? What do you mean by priority message queue ? How can we put priority over message queue ? Mention which type of problem (separate 3 types) which can be solved by Message Queue, PIPE, Sheared Momory. 1 + 1 + 1 + 3

GROUP – C

(Long Answer Type Questions)

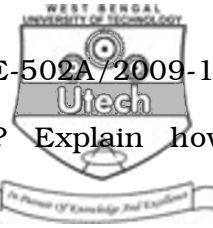
Answer any *three* of the following. 3 × 15 = 45

7. a) Write a shell program to add a new user in the password file with the following details : 4
- i) Group Name : "mca"
- Login Name : "atal"
- User Name : "student"
- Default Shell : bash.
- ii) Now lock the user ram. 2
- b) What is the importance of swap partition ? 4
- c) What is level 0 backup ? 2
- d) What steps are required to perform a bare-metal recovery ? 3



8. a) What are the main phases of booting ? 2
- b) What functions are performed by init at the time of booting ? 3
- c) How can you abort a shut-down ? What is the fastest method of initiating the shut-down procedure in Linux ? 1 + 1
- d) What is a shadow password file ? Why is it required ? 2
- e) Give the complete structure of password file and state the meaning of all the field in it. 3
- f) How can we edit the password file ? What role do user-private groups play ? 3
9. a) What is scalar ? Write a function in PERL which can print the length of a string. Give some list function and state there utility.
- b) What is associate array ?
- c) State some differences of subroutine of perl with other languages like C, FORTRAN, PASCAL.
- d) Write a structure in HTML that can call a perl script.

2 + 5 + 2 + 3 + 3



10. a) What is POSIX thread semaphore ? Explain how SEM_UNDO flag works (with example).
- b) Using semaphore design a system which print 12121212, where "1" stands for process1 and "2" stands for process2.
- c) How can we create 1MB shared memory ? Design a program where chatting can be done using the created shared memory. $2 + 3 + 5 + 5$
11. Write short notes on any *three* of the following : 3×5
- a) DNS
 - b) NAT
 - c) mkfs
 - d) Inode
 - e) /etc/passwd file and /etc/password file
 - f) BIND.
-