Name : ....

Roll No. : ....

Invigilator's Signature : ....

CS/MCA/SEM-5/MCAE-502A/2010
2010
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.*

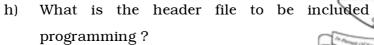Answer Question No. 1 and any *four* from the rest.

1.   Answer the following :   10 × 1 = 10

   a)   What is an incremental backup ?

   b)   What is the significance of /etc/fstab ?

   c)   What is the use of "finger" command with respect to
         System Administration ?

   d)   What is the delimeter used in a Perl program and how
         to denote a comment line in it ?

   e)   What is a firewall ?

   f)   Give the command for deleting an user in Linux.

   g)   What do you mean by IP filtering ?

h) What is the header file to be included for pipe programming ?

i) What is the use of RPM in Linux ?

j) How can one change lost root password in Linux ?

2. a) i) Write a shell program to add a new user in the password file with the following details :

      Group Name   : "rishi"

      Login Name   : "balmiki"

      User Name   : "Balmiki of Kolkata"

      Default shell   : bash.

   ii) Now lock the user balmiki.   4 + 2

  b) What is the importance of swap partition ?   4

  c) Explain how CPU usage is analyzed in the Linux. 5

3. a) What are firewall design policy ?   4

  b) What is packet filtering and proxy server ?   5

  c) Write the rules for the following situations :   3 × 2

   i) Find all defined rules from forward rule set.

   ii) The packet is received from all nodes in network 192.168.0.0.

   iii) Any packet received whose source matches with a.b.com is rejected.

4. a) Differentiate between OSI and TCP/IP by comparing different layers. 5

b) Name some of Ethernet Interfaces. 5

c) Explain the concept of DHCP. 5

5. a) Describe how $|s - l| wc - l|$ command works. 3

b) What is pipe ? Illustrate it with an example. 4

c) Write a program that creates pipe used to communicate between parent and child. It provides half duplex communication. The parent process reads the filename from the terminal and sends it to the pipe. The child process reads the filename from pipe and shows the content of file to terminal. 8

6. a) What is a Perl string ? What are different types of Perl string ? 2 + 3

b) What us CGI ? What are the methods of Data Submission ? Give the difference between each. 2 + 3

c) Write a program showing use of Associative Arrays in Perl. 5

7. a) Write advantages and disadvantages of using a thread over process. 3

b) Compare the different methods of IPC. 3

c) Explain the concept of semaphore. What are the operations, which can be performed on a semaphore ?

3 + 3

d) What is the use of following standard C function with respect to IPC (i) shmget( ) (ii) msgget( ) ? $2 \times 1\frac{1}{2}$