

(2 ½ Hours)

[Total Marks: 75]

- N.B. 1) All questions are compulsory.  
2) Figures to the right indicate marks.  
3) Illustrations, in-depth answers and diagrams will be appreciated.  
4) Mixing of sub-questions is not allowed.

**Q. 1 Attempt All**

(a) Multiple Choice Questions (Unit – I, II and III)

(10M)

- 1) What is "1001" field represents in the following record of "/etc/passwd" file?  
pc2: x : 502: 1001: pc2pc2: /home/pc2: /bin/bash
 

|                  |                |
|------------------|----------------|
| i) User ID       | ii) Group ID   |
| ii) Inode Number | iv) Process ID |
- 2) \_\_\_\_\_ image file of GRUB is used to access several file systems and to locate Stage 2 image file.
 

|               |               |
|---------------|---------------|
| i) Stage 3.5  | ii) Stage 3   |
| ii) Stage 1.5 | iv) Stage 2.5 |
- 3) \_\_\_\_\_ allows a program to be run with permissions from the program's owner, not the user who is running it.
 

|               |                |
|---------------|----------------|
| i) SetUID bit | ii) SetGID bit |
| ii) Pseudo    | iv) root       |
- 4) Which of the following command is correct, to assign following permissions to file f1?      Permission: r\_ \_wx\_ \_x
 

|                   |                  |
|-------------------|------------------|
| i) chmod 641 f1   | ii) chmod 431 f1 |
| iii) chmod 624 f1 | iv) chmod 461 f1 |
- 5) \_\_\_\_\_ provides a way to map or translate an unfriendly numerical IP address into a people friendly format.
 

|                                               |             |
|-----------------------------------------------|-------------|
| i) Dynamic Host Configuration Protocol (DHCP) | ii) Netstat |
| iii) Domain Name System (DNS)                 | iv) ping    |
- 6) MoinMoin is a \_\_\_\_\_.
 

|                         |                 |
|-------------------------|-----------------|
| i) Programming language | ii) wiki engine |
| iii) operating system   | iv) server      |
- 7) In IMAP, mail access is working in which three distinct modes?
 

|                                  |                                          |
|----------------------------------|------------------------------------------|
| i) online, offline, disconnected | ii) offline, disconnected, bidirectional |
| iii) online, offline, connected  | iv) online, connected, bidirectional     |
- 8) \_\_\_\_\_ is the process of having serverA NFS-mounting serverB's disks and serverB NFS-mounting serverA's disks.
 

|                    |                    |
|--------------------|--------------------|
| i) Cross-mounting  | ii) Cross-platform |
| iii) Cross-process | iv) Cross-disks    |

- 9) \_\_\_\_\_ NIS tool can pull the entire map down, and then grep can be used to find a specific entry.
- |            |             |
|------------|-------------|
| i) cat     | ii) grepcat |
| iii) ypcat | iv) ypwhich |
- 10) The full form of IRC in chat is \_\_\_\_.
- |                          |                            |
|--------------------------|----------------------------|
| i) International Chat    | ii) Internet Request Chat  |
| iii) Internet Relay Chat | iv) Internet Response Chat |
- (b) Fill in the blanks (RootDir,example,Superblock,1.org, 3, Mail/Delivery Agent, (5M)  
Wordpress, Inode, Mail Transfer Agent)
- 1) \_\_\_\_\_ is a small data structure reveals several key pieces of information, including the disk's geometry, the amount of available space on disk etc.
- 2) \_\_\_\_\_ runlevel of init is used to start the system as a single-user without networking facility and GUI.
- 3) In the FQDN "University.example.org." \_\_\_\_\_ is the top level domain.
- 4) \_\_\_\_\_ is a blog tool, publishing platform and CMS.
- 5) Exim4 is the \_\_\_\_\_.

**Q. 2 Attempt the following (Any THREE) (15M)**

- (a) Write a short note on chains in iptables.
- (b) Write the steps to configure and install GNU software using source code.
- (c) Define GRUB. Differentiate between GRUB Legacy and GRUB2.
- (d) Describe Init in regards with the following points:
- |                                 |
|---------------------------------|
| i) Init process and run levels. |
| ii) RC scripts.                 |
- (e) Discuss mount command in detail.
- (f) Explain the string equivalents of facility value and priority levels in "/etc/rsyslog.conf".

**Q. 3 Attempt the following (Any THREE) (15M)**

- (a) Write any 5 common directives or options used in apache configuration file.
- (b) Explain the following terms:
- |                                    |
|------------------------------------|
| i) SMTP                            |
| ii) Email components (MUA,MTA,MDA) |
- (c) Which configuration files and directories are present in vsftpd?
- (d) What is mbox format? Discuss Post Office Protocol (POP).
- (e) Write the steps to download, configure and install openssh from source.
- (f) What are the different DNS record types?

**Q. 4 Attempt the following (Any THREE) (15)**

- (a) Describe the following points regarding NFS server:
  - i) The "/etc/exports" Configuration File.
  - ii) exportfs command
- (b) Stepwise explain configuration of master NIS server.
- (c) Explain the "declaration" types in DHCP configuration file.
- (d) Discuss smbclient program.
- (e) Define MySQL. Differentiate between MyISAM and InnoDB.
- (f) Write different Distributed File System (DFS) implementations.

**Q. 5 Attempt the following (Any FIVE) (15)**

- (a) Write the targets used in "Makefile" which is required in kernel.
- (b) Discuss ifconfig command.
- (c) Describe Kerberos.
- (d) Explain apache in regards with the following points:
  - i) Definition of apache
  - ii) Advantages of apache
  - iii) Installation of apache
  - iv) Starting and stopping apache
  - v) Testing apache service on browser
- (e) What are the different OpenLDAP utilities are available?
- (f) Write a short note on Jabber.
- (g) What is the use of chroot. Explain how does chroot work?
- (h) Write any 5 options found in sshd configuration file.

.....