

**MCA (Revised) / BCA (Revised)**

**Term-End Examination**

**June, 2018**

**06505**

**MCS-022 : OPERATING SYSTEM CONCEPTS AND  
NETWORKING MANAGEMENT**

*Time : 3 hours*

*Maximum Marks : 100*

*(Weightage 75%)*

---

**Note :** *Question no. 1 is compulsory. Answer any three questions from the rest.*

---

1. (a) Write the rules for a packet filtering firewall that implements the following : 6
- (i) Allow all inbound HTTP traffic to a machine on the internal network with IP address 172.17.15.69.
- (ii) Allow all inbound DNS resolution.
- (iii) Block all other inbound traffic from any external source.

(b) Name the data *transmission mode* in each of the following cases :

4

- (i) Two people talking over the telephone
- (ii) A television serial being telecast
- (iii) A press conference
- (iv) Broadcast on FM radio

(c) List and explain the various network topologies. Write one advantage and one disadvantage of each.

10

(d) Assume a new contract employee, Rajesh Kumar, has joined an organisation for one year. You are the system administrator there. Write down the steps you will follow to arrange

10

- (i) To create a Windows 2000 domain user account for Rajesh.
- (ii) To allow Rajesh to log on to the network only during his work timings on weekdays.

(iii) Make sure that Rajesh can access the network only during his contract period.

(e) What is multiprogramming ? How does multiprogramming differ from multitasking ?

10

2. (a) You are the network administrator in a network with IP addresses 202.40.20.1 to 202.40.20.255.

8

(i) If the machine 202.40.20.67 sends a packet to 202.40.20.185, is this unicasting, multicasting or broadcasting ?

(ii) Give an example of multicasting.

(iii) Give an example of broadcasting.

(b) (i) Name the different permissions that can be set for printers in Windows NT. Explain the significance of each.

4

(ii) What is the default location of the print spooler in Windows NT ?

2

(iii) Write the Linux/Unix commands to create a file called "file3", which consists of "file1" appended to "file2". Both "file1" and "file2" already exist. 3

(iv) How can you start the Apache webserver on Linux ? How will you verify that it has started and is running correctly ? 3

3. (a) (i) A Linux file called "poets\_list" has some set of permissions. If you are the owner of the file, write the Linux command to set the permissions of "poets\_list" such that only you and users that are part of your group can change its contents. Others can only read it but cannot search for it. 2

(ii) In the question above, how can the permissions be set if you are the power user of the file ? 2

- (iii) Suppose there is no command or program called "vroom" on your Linux system. What will be the output of

`vroom > testfile`

on the screen ? What will be the contents of "testfile" ?

2

- (iv) There are 26 files in a directory called "mydirectory". The files have names of the form "myfileA.py", "myfileB.py", and so on up to "myfileZ.py". Give any four ways of moving all these 26 files to a directory called "hisdirectory", with the Linux or Unix commands that will be used.

4

- (b) What are the three strategies that can be used to authenticate a user to a computer system ? Describe how authentication can be done using hardware tokens.

10

4. (a) What are the design goals of the Domain Name System (DNS) ? Describe its design principles and architecture. 12
- (b) (i) State whether the following are guided or unguided transmission media : 2
- Optical fibre
  - Twisted pair
  - Co-axial wire
  - Air
- (ii) Name the four different options available to sort the contents of a folder that are displayed in its directory listing in Windows 2000. 2
- (iii) Name the four different types of vulnerabilities of a computer system. 2
- (iv) Write the linux command to remove all files and directories from the current directory. 2

**5. Write short notes on the following :**

**4×5=20**

- (a) X Windows**
- (b) Data Backup Strategies**
- (c) Auditing in Windows 2000**
- (d) Microkernel Architecture**