

Exam. Code : 217901

Subject Code : 6994

M.Sc. Information & Network Security 1<sup>st</sup> Semester

**COMPUTER NETWORK**

**Paper—I**

Time Allowed—3 Hours]

[Maximum Marks—100

**Note :—** Attempt *five* questions in all. All questions carry equal marks.

1. (a) Define data communication. Explain various standard organizations and its applications.  
2+4+4
- (b) Explain various network categories in detail.  
10
2. (a) Explain various network topologies along with their implementation.  
10
- (b) Draw comparison between TCP/IP an OSI models.  
10
3. (a) Define and explain “analog to digital” and “digital to analog” conversion.  
10
- (b) Why transmission media is required ? Explain modems in detail.  
4+6
4. (a) Explain any their guided transmission media in detail.  
10
- (b) Explain “Modulation and Multiplexing” in detail.  
5+5

5. (a) Explain VRC and LRC methods of error detection. 5+5
- (b) How single-bit errors are detected and corrected ? Explain with example. 5+5
6. (a) What is data link control ? How is it realized ? Explain. 4+6
- (b) Explain character oriented and bit oriented protocols. 5+5
7. (a) Which are the various issues in providing services for routing and signalling ? Explain in detail. 10
- (b) Explain distance vector routing in detail. 10
8. Explain about any *two* :
  - (a) Session Layer
  - (b) Protocols
  - (c) Presentation layer. 10×2=20



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NETWORK PROTOCOLS

Paper—II

Time Allowed—3 Hours] [Maximum Marks—100

**Note :—** Attempt *five* questions in all. All questions carry equal marks.

1. What are the different types of Interconnections ?  
How are they implemented using IP routers ? Explain.  
20
2. How is internet address mapping carried out ? Explain the following :
  - (a) Direct Mapping 10
  - (b) Dynamic Binding. 10
3. Describe the following concepts :
  - (a) Connectionless and Connection Oriented Delivery System 10
  - (b) Supernetting. 10
4. Explain the working of the following protocols in detail :
  - (a) TCP 10
  - (b) ARP. 10

5. How ICMP protocols is implemented ? Compare the mechanism of error reporting and error detection during transmission. 20
6. Describe the procedure for implementation of subnet with masks in detail. 20
7. Explain the format of UDP message and UDP multiplexing and de-multiplexing. 20
8. Write short notes on the following :
  - (a) Datagram 10
  - (b) Table driven IP routing. 10



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NETWORK OPERATING SYSTEM

Paper—III

Time Allowed—3 Hours] [Maximum Marks—100

**Note** :— Attempt any *five* questions. All questions carry equal marks.

1. What is Network Operating System ? Discuss various features of a Network Operating System.
2. Discuss file structure and various operations on a file in LINUX.
3. Write short notes on :
  - (a) IIS
  - (b) DNS.
4. Write short notes on :
  - (a) Installing and managing H/W devices in LINUX.
  - (b) Checking disk quotas in LINUX.
5. Describe in detail the creation and management of Users and Groups in Windows 2003.
6. Write short notes on :
  - (a) Choosing and managing backup media
  - (b) Restoring data using backup.
7. Briefly explain troubleshooting Windows 2003 server.
8.
  - (a) Compare Windows 2003 server and LINUX server.
  - (b) Explain different levels of RAID with their advantages and disadvantages.

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**INFORMATION SECURITY & THREATS**

**Paper—IV**

Time Allowed—3 Hours] [Maximum Marks—100

**Note** :— Attempt any *five* questions. All questions carry equal marks.

1. What is need of information security ? What is difference between cyber-crime and computer based crime ?
2. Which are three popular pillars of security ? Which are various security myths ?
3. (a) What is difference between http and https in context of information security ?  
(b) What is meant by hardening of OS ? How is it done ?
4. What is purpose of using firewall ? What is difference between host based firewall and network based firewall ? What do you mean by deploying firewall ?
5. Which are various types of security threats ? Explain their measures also.



6. Explain the following :

- (a) NMAP
- (b) Netcat
- (c) Tcpdump
- (d) Keylogger.

7. Which are publicly known information-security vulnerabilities ? What is CVE ? What is difference between CVE and CAN ?

8. What is use of digital signatures ? Explain the process of generating digital signatures.