

T.Y. B.Sc. CS

Sem VI

7525

[Time: 2½ Hours]

Data Communication Networking &amp; Security

[ Marks : 75]

Please check whether you have got the right question paper.

- 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 the following (any THREE):****(15)**~~(A)~~ Change the following IPv4 addresses from dotted-decimal notation to binary notation.

- 111.56.45.78
- 221.34.7.82

~~(B)~~ A block of addresses is granted to a small organization. We know that one of the addresses is 205.16.37.39/28. Find the following

- First address in the block,
- Last address in the block,
- Total number of address

~~(C)~~ Discuss the working of Dynamic Host Configuration Protocol.~~(D)~~ What are routing protocols? Explain distance vector routing with an example.~~(E)~~ How Bootstrap Protocol ( BOOTP ) will work, when client and server are on different network.~~(F)~~ Discuss direct and indirect delivery with an example.**Q 2. Attempt the following (any THREE):****(15)**~~(A)~~ Give on important differentiation point between UDP and TCP.~~(B)~~ Explain with an example, Connection establishment using three-way handshaking~~(C)~~ Write a short note on Backpressure method for alleviating congestion~~(D)~~ Define Quality of Service. Discuss in brief different flow characteristics.~~(E)~~ What is domain name space? Discuss hierarchy of name space with an example.~~(F)~~ How one can transfer a file using FTP? Explain with an example.**Q 3. Attempt the following (any THREE):****(15)**~~(A)~~ Define computer security. List and explain three key objective of computer security.~~(B)~~ What is security attack? Define passive attacks and active attacks. Explain active attack with an example.~~(C)~~ Describe in brief any five **types of malicious software**.~~(D)~~ What is Distributed Denial of Service attack? Discuss DDoS attack description.~~(E)~~ List and discuss characteristics and limitations of firewall.~~(F)~~ Describe different filtering rule of Packet Filtering Firewall.**Q 4. Attempt the following (any THREE):****(15)**~~(A)~~ Discuss the concept of symmetric key cipher for encryption and decryption.~~(B)~~ Explain with an example additive cipher and multiplicative cipher.~~(C)~~ Discuss the general structure of DES in detail.~~(D)~~ How Asymmetric key cryptography works during encryption and decryption of plaintext.~~(E)~~ Define pigeonhole principle. Explain the birthday problem.~~(F)~~ How Pretty Good Privacy (PGP) Protocol works with e-mail to provide privacy, integrity and authentication.

Q 5. Attempt the following (any THREE):

(15)

(A) Find the error, if any, in the following IPv4 addresses and give a reason for the error.

233.45.278.23

344.43.23.12

(B) Write format of an electronic mail with an example.

(C) Discuss the remote logging facility of Telnet.

(D) Write a short note on demilitarized zone (DMZ) network.

(E) Define intruder. List and discuss different classes of intruders.

(F) Write a short note on IPSec.