

COMPUTER NETWORKS

(Computer Science and Engineering)

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) The period of a signal is 100 ms. What is its frequency in kilohertz?
 - (b) We have a low-pass channel with bandwidth 100 kHz. What is the maximum bit rate of this channel?
 - (c) Calculate the hamming distance between 10101 & 11110 and 000 & 011.
 - (d) Find the status of the $(x + 1)$ generator related to two isolated, single-bit errors.
 - (e) In flooding to control the number of duplicate packets we have loop count in header of each packet. If you are not allowed to set the loop count, what will you do to control the number of duplicate packets?
 - (f) Is it possible for the sender of IP packet to decide the route to travel by the packet? How?
 - (g) What are the three phases in TCP communication?
 - (h) If UDP is so powerless, why would a process wants to use it?
 - (i) TELNET uses logging name and password but, still it is vulnerable to hacking. Why?
 - (j) Draw figure that shows the purpose of DNS.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

- 2 (a) List and explain the four levels of addressing employed in TCP/IP protocols.
(b) Give a brief note on Internet Standards and Internet Administration.

OR

- 3 (a) Explain about the following waves: (i) Radio waves. (ii) Micro waves.
(b) Discuss about the performance measure factors of the computer networks.

UNIT – II

- 4 Let us assume that we have four stations connected to the same channel. Consider the case station 3 is in silent mode and remaining stations are not in silent mode. How station 3 listen to the remaining stations?

OR

- 5 (a) Draw and explain the flow diagram for CSMA/CD.
(b) What is the restriction on the frame size in CSMA/CD? In the standard Ethernet, if the maximum propagation time is 25.6 μ s, what is the minimum size of the frame?

UNIT – III

- 6 Write in detail about Border Gateway Protocol and what are the various types of messages in BGP?

OR

- 7 (a) With the help of example, explain a situation where we use hop-by-hop choke packet.
(b) What are the different congestion prevention policies at transport and network layers?

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UNIT – IV

- 8 Explain the following transport layer protocols:
- (a) Simple protocol.
 - (b) Stop and wait protocol.
 - (c) Go-Back-N protocol.
 - (d) Selective Repeat Protocol.

OR

- 9 The following is a dump of a UDP header in hexadecimal format:

CB8400D001C001C

- (a) What is the source port number?
- (b) What is the destination port number?
- (c) What is the total length of the user datagram?
- (d) What is the length of the data?
- (e) Is the packet directed from a client to a server or vice versa?

UNIT – V

- 10 (a) Draw and explain the basic model of FTP.
(b) With the help of common scenario, explain the architecture of e-mail.

OR

- 11 (a) List and explain the application of SSH.
(b) Explain about name-address resolution.
