B.E. (Computer Technology) Sixth Semester (C.B.S.)

Computer Networks

P. Pages : 2 **TKN/KS/16/7489**

Time : Three Hours * 0 8 3 2 * Max. Marks : 80

Notes :
1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Due credit will be given to neatness.
9. Assume suitable data whenever necessary.
10. Diagrams should be given whenever necessary.
11. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) What do you mean by line coding ? What are the advantages of using different line codes ? Explain any three line coding techniques with diagram. **7**

b) What is the difference between a physical and logical topology ? Define different physical topologies that are used in network. **7**

OR

2. a) What are the main components of Network ? List and explain. **4**

b) Match the following to one or more layers of the OSI model. **10**
i) Communicating directly with user's application program.
ii) Error Correction and retransmission.
iii) Mechanical, electrical and functional interface.
iv) Log-in and Log-out procedures.
v) Route determination.
vi) Provides access for the end user.
vii) Interface to transmission media.
viii) Process to process delivery.
ix) Provides user services such as email and file transfer.
x) Carrying frames between adjacent nodes.

3. a) The following character encoding is used. **9**
A:01000111 B:11100011
FLAG:01111110 ESC:11100000
Show the bit sequence transmitted (in binary) for the above four-character frame: A B ESC FLAG with each of the following framing methods.
i) Character count.
ii) Flag bytes with byte stuffing.
iii) Starting and ending flag bytes with bit stuffing.

b) Explain any limited contention protocol by giving diagrammatic representation. **4**

OR

4. a) A bit stream1011101 is transmitted using the standard CRC method. The generator polynomial is x^3+1. Show the actual bit string transmitted. Suppose the third bit from the left is inverted during transmission. Show that this error is detected at the receiver's end. **9**

b) Explain the concept of Go-Back-N. **4**

5. a) What are the three phases in the virtual circuit approach to switching ? Explain each phase. **8**

b) What is a Router ? List and explain any four functions of Router. **5**

OR

6. a) An organization is granted a block of addresses with the beginning address 14.24.74.0/24. The organization need to have 3 Subblocks of addresses to use in its three subnets: One subblock of 10 addresses, one subblock of 60 addresses and one subblock of 120 addresses. Design the subblocks. **8**

b) Discuss the problems associated with Distance Vector routing in detail. **5**

7. a) What is Socket ? What are its components ? Explain its use. **7**

b) Draw TCP segment format. Explain each field in detail. **7**

OR

8. a) Draw and explain TCP state transition diagram in detail. **9**

b) What do you mean by Quality of Services ? Describe various Quality of Services for networking. **5**

9. a) Define the type of attack in each of the following cases: **7**

i) A student breaks into a professor's office to obtain a copy of the next test.

ii) A student gives a check for Rs. 50/- to buy a used book. Later the student finds out that the check was cashed for Rs. 100/-

iii) A student sends hundreds of e-mails per day to the school using a phony return e-mail address.

b) Explain File Transfer Protocol. **6**

OR

10. a) Discuss authentication and their ways. **6**

b) Write short notes and working of SNMP. **7**

11. a) Explain concept and working of VLAN. **7**

b) What is ISDN ? List and explain services provided by ISDN. **6**

OR

12. Write note on:

i) ATM. **3**

ii) Cellular Telephony. **3**

iii) Satellite Network. **4**

iv) Sonet. **3**

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