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Total No. of Pages : 02

Total No. of Questions : 08

**M.Tech.(ECE) (2016 Batch) (Sem.-1)**  
**DATA COMMUNICATION NETWORK**  
**Subject Code : MTEC-102**  
**Paper ID : [74147]**

Time : 3 Hrs.

Max. Marks : 100

**INSTRUCTION TO CANDIDATES :**

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.

1.
  - a. What do you mean by transmission Impairment? Discuss all the types of transmission impairment in detail. (10)
  - b. If the signal at the beginning of a cable with  $-0.3\text{dB/km}$  has a power of  $0.2\text{ mW}$ . Calculate the power of signal after  $5\text{ km}$ . (5)
  - c. For a typical telephone line with a signal-to-noise ratio of  $30\text{dB}$  and an audio bandwidth of  $3\text{kHz}$ , Determine the maximum data rate using Shannon's Theorem. (5)
2.
  - a. Differentiate between Asynchronous and Synchronous transmission. (10)
  - b. What is DNS system? Why name servers are defined in DNS? (10)
3.
  - a. What do you mean by TDMA? Differentiate between Synchronous and Statistical TDM. (10)
  - b. What do you mean by Hamming distance? A code scheme has a Hamming distance  $d_{\min} = 4$ . What is the error detection and correction capability of this scheme? (10)
4. Write down the algorithm for Selective automatic repeat ARQ protocol. Also give the analyses of algorithm with suitable example. (20)
5. Discuss in detail : (20)
  - a. CSMA/CD
  - b. FDDI
  - c. DQDB

6. a. What is Link state routing? How new routes are computed using link state routing? (10)  
b. Discuss the TCP transmission Policy using window management. How it removes congestion? (10)
7. Discuss all the layers of ATM network with their functions. Also write down the design goals for ATM networks. (20)
8. a. What do you mean by QoS? Also discuss the various flow characteristics in detail. (10)  
b. Discuss the working of intrusion detection system in detail. (10)

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