

EIGHTH SEMESTER B.TECH. DEGREE EXAMINATION

2013 Scheme - Model Question Paper

13.804 DATA NETWORKS (A)

Time: 3 Hours

Max Marks: 100

Part A

(Answer all questions. Each question carries 4 marks.)

1. Write the advantages and disadvantages of a digital communication system.
2. What does the Nyquist theorem have to do with communications?
3. Differentiate between synchronous and asynchronous transmission.
4. Explain the segment structure of UDP.
5. Explain the working of NAT.

Part B

(Answer any one question from each module, 20 marks each)

Module-I

6. a) Explain the two major categories of transmission media. What is the significance of twisting in twisted-pair cable? Name the advantages of optical fiber over twisted-pair and coaxial cable. (12)
b) Explain Shannon's theorem (8)

OR

- 7.a) Draw the block diagram of a digital communication system and explain the function of each block. (12)
b) A line has a signal-to-noise ratio of 2000 and a bandwidth of 5000 KHz. What is the maximum data rate supported by this line? (8)

Module-II

8. Explain the following:
i) Circuit switching and Packet switching.

ii) Synchronous TDM and statistical TDM (20)

OR

9. What is Automatic Repeat Request? Describe the various ARQ systems and compare their performances (20)

Module- III

10. List the 7 layers of ISO-OSI network architecture and explain the functions of each layer. (20)

OR

11. a) How does a Simple Mail Transfer Protocol (SMTP) function? Explain with one example. (12)

b) Describe briefly the functioning of ARP protocol. (8)

Module-IV

12.a) Write short notes on:

(i) GPRS (ii) EDGE (iii) HSPDA (10)

b) Explain different IEEE standard 802 for LAN. (10)

OR

13. a) Explain the working of CSMA/CD. (8)

b) What is a VPN and why is it needed? (6)

c) Explain firewall. (6)
