

B.E. (Electronics and Communication Engineering)
Fifth Semester
EC-504: Computer Networks

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

I. Answer the following:-

- a) What is the purpose of a subnet in a network?
- b) What is layering and why is it required?
- c) What is the difference between Passive Hub and Active Hub?
- d) Mention drawbacks of Flooding.
- e) What are the differences between bit stuffing and byte stuffing? (5x2)

UNIT - I

- II. a) Explain all the layers of TCP/IP protocol in detail.
b) Discuss the impairments in transmission (attenuation, noise, distortion) and their effects on system performance. Suggest methods to mitigate each. (2x5)
- III. a) Compare parity check, CRC, and Hamming code in terms of error coverage and complexity.
b) Explain sliding window protocols Selective Repeat. Draw timing diagrams and discuss efficiency. (2x5)
- IV. Explain the ALOHA and Slotted ALOHA protocols. Derive the efficiency formula for both and discuss reasons for the difference. (10)

UNIT - II

- V. a) Explain Distance Vector Routing algorithms.
b) Discuss methods like leaky bucket, token bucket and their effect on throughput. (2x5)
- VI. a) Explain various approaches describing how connection is established & released at Transport layer.
b) Discuss IPv4 and IPv6 addressing schemes. Explain the transition mechanisms. (2x5)
- VII. a) Discuss cryptography in network security. Explain symmetric vs asymmetric encryption.
b) Explain the working of the Domain Name System (DNS). Describe the resolution process, types of DNS records, and caching. (2x5)

x-x-x