

BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)
B. Tech. Sem - VI Computer Science & Business Systems : SUMMER : 2025
SUBJECT: COMPUTER NETWORKS

Day : Thursday
Date : 22/05/2025

S-24181-2025

Time : 02:30 PM-05:30 PM
Max. Marks : 60

N.B.

- 1) All questions are **COMPULSORY**.
- 2) Figures to the **RIGHT** indicate **FULL** marks.
- 3) Assume suitable data **WHEREVER** necessary.
- 4) Draw neat diagrams **WHEREVER** necessary.

Q.1 Explain the OSI model and its relevance in understanding network communication. (10)

OR

Q.1 Discuss different types of transmission media used in computer networks and their respective advantages. (10)

Q.2 Explain sliding window protocol in detail. Briefly differentiate between Go-Back-N ARQ and Selective Repeat ARQ used for flow control in data link layer protocols. (10)

OR

Q.2 Describe the working principle of CRC (Cyclic Redundancy Check) in data communication. A bit stream 10011101 is transmitted using standard CRC method. The generator polynomial x^3+1 . Show the actual bit string transmitted. Suppose that the third bit from the left is inverted during transmission. Show that this error is detected at the receivers end. (10)

Q.3 Define switching in the context of the network layer and discuss its significance in data transmission. List the difference between circuit switching and packet switching. (10)

OR

Q.3 Explain Distance vector routing in detail. Compare and contrast Distance vector routing over path vector routing. (10)

Q.4 Describe the components of an Email system and explain the process of sending and receiving Emails. (10)

OR

Q.4 Discuss how Simple Network Management Protocol (SNMP) facilitates network device management and monitoring. (10)

Q.5 Explain the concepts of spread spectrum and discuss its role in enhancing communication security and reducing interference. (10)

OR

Q.5 Describe the principle of Wavelength Division Multiplexing (WDM) where multiple signals are transmitted on a single optical fiber using different wavelengths of light. List the difference between WDM and TDM (Time Division Multiplexing). (10)

Q.6 Briefly explain the concept of encryption and decryption in the context of securing data communication. (10)

OR

Q.6 Explain the role of digital signatures in Email security and how they help to verify the authenticity of the sender. (10)
