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

Day : Friday
Date : 16/05/2025

S-25591-2025

Time : 10:00 AM-01:00 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 Reference Model in detail. Describe the functionalities of each layer with examples. **(10)**

OR

Q.1 Explain the function and working of the following network devices: Bridge, Switch, Router, Brouter, and Access Point. How do they contribute to data communication? **(10)**

Q.2 Differentiate between error detection and error correction techniques. Explain Hamming code with an example. **(10)**

OR

Q.2 Explain the architecture and working of Ethernet. What is CSMA/CD and how does it help in collision management? **(10)**

Q.3 Describe the Link State Routing algorithm. How does it differ from Distance Vector Routing? Mention advantages and drawbacks. **(10)**

OR

Q.3 Differentiate between IPv4 and IPv6 addressing schemes. What are the benefits and challenges of migrating to IPv6? **(10)**

Q.4 What is multiplexing and demultiplexing in the context of the transport layer? Explain with suitable examples. **(10)**

OR

Q.4 Discuss the working of UDP. In what scenarios is UDP preferred over TCP and why? **(10)**

Q.5 Explain the architecture and working of the Domain Name System (DNS). How does DNS resolve a domain name to an IP address? **(10)**

OR

Q.5 Discuss the role and structure of Simple Network Management Protocol (SNMP). How does it facilitate network management? **(10)**

Q.6 Explain the basic concepts of cryptography. Differentiate between symmetric and asymmetric encryption with examples. **(10)**

OR

Q.6 Explain how electronic mail (email) can be secured. Discuss the use of encryption, digital signatures, and secure email protocols. **(10)**

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