BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)
B. Tech. Sem - V COMPUTER SCIENCE & ENGINEERING : SUMMER : 2024
SUBJECT: COMPUTER NETWORKS

Day : Wednesday
Date : 15/05/2024

S-25591-2024

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 labeled diagrams **WHEREVER** necessary.
5) Use of IS800, IS875, Steel Table and Calculator is **allowed**.

Q.1 Describe the seven layers of the OSI model and their functions. Compare and contrast the TCP/IP model with the OSI model. **(10)**

OR

Q.1 Explain the functionality of bridges, switches, routers and access points in a network. **(10)**

Q.2 Discuss working of CRC error detection in detail. Calculate CRC for the frame 110101001 and generator polynomial is $x^4 + x^2+1$. What is transmitted frame? **(10)**

OR

Q.2 Describe in brief following Sliding Window Protocols : **(10)**

a) Stop and Wait ARQ
b) Go Back ARQ
c) Selective Repeat ARQ

Q.3 Discuss structure of an IPv4 address in detail. Differentiate between IPv4 and IPv6 addressing scheme. **(10)**

OR

Q.3 Describe Unicast Routing Protocols in detail. **(10)**

Q.4 What is socket? List and explain various socket primitives in TCP socket program on client and server side. **(10)**

OR

Q.4 Discuss the various congestion control algorithms used in transport layer protocols and their impact on network performance. **(10)**

Q.5 Explain the role of DNS in translating domain names to IP addresses and also discuss hierarchy of DNS servers. **(10)**

OR

Q.5 Describe the purpose of SNMP in network management and discuss its architecture and components in detail. **(10)**

Q.6 Describe how symmetric encryption works and discuss examples of symmetric algorithm. **(10)**

OR

Q.6 Discuss common threats to email security and explain techniques such as digital signatures and encryption to secure email communication. **(10)**

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