Registration No.: | | | | | | | | | | |

Total Number of Pages: 02

IDD (B.Tech and M.Tech)
Sub_Code: CSPC2007

4th Semester Regular Examination: 2024-25
SUBJECT: Computer Networks
BRANCH(S): CE, CSE, CSIT, CST, IT
Time: 3 Hours
Max Marks: 100
Q.Code: S580

Answer Question No.1 (Part-I) which is compulsory, any eight from Part-II and any two from Part-III.
The figures in the right hand margin indicate marks.

Part-I

Q1 **Answer the following questions:** **(2 x 10)**

a) Define ARPANET and its significance in networking.
b) Differentiate between analog and digital signals.
c) Name two collision-free protocols in the MAC sublayer.
d) List any two transmission impairments and briefly describe them.
e) What is a twisted pair cable? Mention its application.
f) Explain the term CRC in error detection.
g) What is meant by a simplex protocol?
h) What is the significance of spanning tree bridges?
i) Differentiate between a router and a switch.
j) Define multiplexing and list its types.

Part-II

Q2 **Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve)** **(6 x 8)**

a) Explain the OSI model layers and their responsibilities.
b) Explain framing and error correction techniques in the data link layer.
c) Describe the working of a stop-and-wait protocol with diagrams.
d) Discuss the role of ICMP and IGMP in internetworking.
e) Explain the ALOHA protocol and its variants.
f) Discuss the different types of multiple access protocols.
g) Compare IPv4 and IPv6 addressing schemes.
h) Explain the framing techniques used in the data link layer.
i) Explain the concept of congestion control in the network layer.
j) What are the advantages of fiber optics over coaxial cables?
k) Discuss the challenges in wireless LANs and their solutions.
l) Explain various guided and unguided transmission media with diagrams.

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four) **(16 x 2)**

Q3 Describe the architecture of the Internet, including logical addressing, IP, and supporting protocols (ARP, RARP, and DHCP). **(16)**

Q4 Discuss all types of routing algorithms in the network layer. Compare their performance and applications. **(16)**

Q5 An IP address is given as 192.168.10.14/28. Calculate: **(16)**

- Network address
- Broadcast address
- Number of valid hosts
- First and last valid host addresses.

Q6 A sliding window protocol is used with a window size of 7. If the sequence number field is 3 bits, is the protocol using Go-Back-N or Selective Repeat? Justify with calculations. **(16)**