VCD/ 26/10/23 SYBScIT SEM III COMPUTER NETWORKS 2 ½ HRS 75 marks

N. B.: (1) **All** questions are **compulsory**.
(2)Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(3)Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labeled diagrams** wherever **necessary**.

Q1. Attempt any three. **(15)**

a. What is data communication? What are its fundamental characteristics and components?
b. What is protocol? Explain its key elements.
c. Explain the functions of transport layer in OSI model.
d. Explain the following:
i. Physical address ii. Logical address iii. Port address iv. Application specific address v. Socket address.
e. Explain the functions of routers and switches.
f. Explain the concept of LAN and WAN.

Q2. Attempt any three. **(15)**

a. Explain various causes of transmission impairment.
b. Explain the services of data link layer.
c. Explain various ways in which performance of a network can be measured.
d. Explain the operation of ARP.
e. Explain the characteristics of wireless LAN.
f. Explain cyclic redundancy check with example.

Q3. Attempt any three. **(15)**

a. Explain various timers in RIP.
b. Explain types of BGP packet.
c. Write a short note on NAT.
d. Explain transition from IPv4 to IPv6.
e. Explain fragmentation in IPv4.
f. Explain distance vector routing algorithm.

Q4. Attempt any three. **(15)**

a. Explain the three-way handshake process in TCP.
b. Explain services of UDP.
c. Explain various TCP timers.
d. Explain sliding window mechanism in TCP.
e. Explain UDP applications.
f. Explain TCP segment format.

Q5. Attempt any three. **(15)**

a. Explain components of SSH.
b. Explain various phases of mail transfer.
c. Explain types of connections in FTP.
d. Explain persistence and non-persistence connections in HTTP.
e. Explain recursive and iterative resolutions in DNS.
f. Write a short note on IMAP.