

## MSc Sem.-2 Examination

408

DS-DC &amp; N

May-2025

Time : 2-30 Hours]

[Max. Marks : 70

**Instructions:** All questions are compulsory. Use of non-programmable scientific calculator is allowed.

- Q.1** (a) What is a computer network? Discuss different types of it. (07)  
 (b) Discuss the role of the different layers available in the OSI model. (07)

OR

- (a) Compare and contrast TCP/IP model Vs OSI model. (07)  
 (b) Explain connection-oriented systems and connectionless systems with suitable examples. (07)

- Q.2** (a) What is the signal? How does it differ from data? Discuss different types of signals. (07)  
 (b) Discuss transmission impairment and its causes briefly. (07)

OR

- (a) What is media? Discuss different types of media used in computer networks. (07)  
 (b) List and explain different types of switching techniques. (07)

- Q.3** (a) What is Framing? Elaborate on different types of framing techniques. (07)  
 (b) Compute CRC from the data 1101011111 with generator 10011. (07)

OR

- (a) Discuss the stop-and-wait protocol for a noisy channel. (07)  
 (b) Explain Hamming code to pass the data 110100110 by the sender. Also, explain how the recipient will recognize if an error occurs on 10<sup>th</sup> bit position. (07)

- Q.4** (a) Explain the count-to-infinity problem with an example. (07)  
 (b) Discuss the Distance-Vector algorithm by taking a suitable example. (07)

OR

- (a) What is ALOHA? How does it help with the shared channel problem? Also, explain how it is improved as Slotted ALOHA. (07)  
 (b) Discuss CSMA-CD protocol in detail. (07)

**Q.5** Define the following terms. Attempt any **SEVEN** out of **TWELVE**:

**(14)**

- (1) Polling
- (2) Link State
- (3) Jitter
- (4) FDMA
- (5) WLAN
- (6) Half-Duplex
- (7) Nonpersistent CSMA
- (8) TCP
- (9) Class-C IP address
- (10) MAC address
- (11) DNS
- (12) DHCP

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