

MCADD-602

M.C.A. (Integrated), VI Semester

Examination, May 2024

Advanced Computer Networks

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.

ii) All questions carry equal marks.

1. a) What are the seven layers of the OSI model and how do they function in the context of data transmission?
b) What are the advantages and disadvantages of Frequency Division Multiplexing (FDM) compared to Time Division Multiplexing (TDM) discuss in detail.
2. a) What is Amplitude Modulation (AM) and how does it differ from other modulation techniques such as Frequency Modulation (FM) and Phase Modulation (PM)?
b) Explain the concept of even parity and odd parity in the context of parity checking. How do these schemes differ in their implementation and error detection capabilities?
3. a) Calculate the CRC checksum for a data word represented by the polynomial $D(x) = x^5 + x^4 + x^2 + 1$ and a CRC polynomial $C(x) = x^3 + x + 1$.
b) What is the purpose of the sliding window protocol in computer networks and how does it address the challenges of reliable data transmission?

4. a) Describe the key features and characteristics of the IEEE 802.3 Ethernet standard.
b) What is Fiber Distributed Data Interface (FDDI) and what are its primary features and advantages in networking?
5. a) What are the primary functions of a repeater and hub? How does it differ from each other?
b) Explain the concept of routing tables and how they are used by routers to make forwarding decisions?
6. a) Provide an overview of the TCP/IP protocol suite and its role in the internet architecture.
b) Describe the basic idea behind Dijkstra's Algorithm for finding the shortest path in a graph with suitable example.
7. a) What are the advantages of using virtual terminal protocol over physical console access to a computer system? Discuss.
b) Describe the process of DNS resolution and how domain names are translated into IP addresses?
8. Write a short notes on any two:
 - a) CSMA/CD
 - b) Finite State Machine
 - c) DQDB Protocol
 - d) SNMP
