

Most Important Unit (MAKAUT CN)

Unit 2 – Data Link Layer & Medium Access Sublayer dominates.

- 672 weighted marks
- 62 questions

what is osi model

MAKAUT Exam Statistics & Strategy

Unit Strategy: Unit 2 (Data Link Layer & Medium Access Sublayer) is a strong contributor with 224 marks.

Typical Weightage: Unknown

1. Definition / Introduction

The OSI (Open Systems Interconnection) model is a conceptual framework that describes how information should be transmitted between different systems in a network. It consists of seven layers, each with specific functions to ensure reliable data communication. The OSI model is used as a reference for designing and troubleshooting networking protocols and technologies.

2. Core Explanation

2.1 Working Principle

The working principle of the OSI model involves breaking down the process of transmitting data into discrete steps at each layer. Data starts its journey from the application layer, passes through the session, transport, network, data link, and physical layers before reaching the destination.

2.2 Architecture / Components

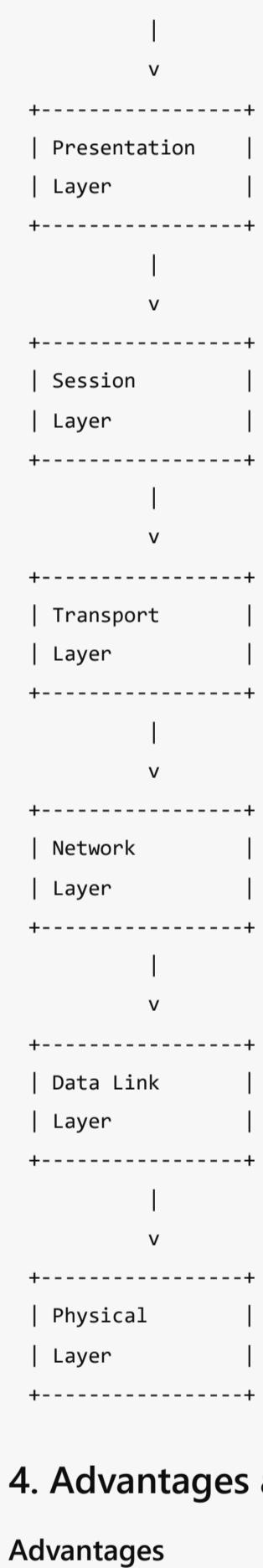
The architecture of the OSI model includes seven distinct layers:

1. **Application Layer:** Handles user applications.
2. **Presentation Layer:** Manages data representation and encryption.
3. **Session Layer:** Establishes, manages, and terminates sessions between devices.
4. **Transport Layer:** Ensures reliable data transfer and flow control.
5. **Network Layer:** Routes data packets across networks.
6. **Data Link Layer:** Manages the physical transmission of data frames.
7. **Physical Layer:** Deals with the physical aspects of transmitting raw bit streams over a communication channel.

2.3 Data Flow / Operation Steps

The process begins at the application layer where data is prepared for transmission. It then moves to the presentation layer, which may encrypt or format the data. The session layer establishes a connection between devices. The transport layer ensures that data arrives in the correct sequence and error-free. Next, the network layer routes the packets through the network. The data link layer manages the physical transfer of frames over the medium. Finally, the physical layer transmits raw bits.

3. ASCII Diagram



4. Advantages and Limitations

Advantages

1. **Standardization:** The OSI model provides a standardized framework for designing network protocols.
2. **Layered Approach:** Each layer has specific responsibilities, making the design and troubleshooting of networks easier.
3. **Interoperability:** It facilitates interoperability between different systems by defining clear interfaces.

Limitations

1. **Complexity:** Implementing all seven layers can be complex and resource-intensive.
2. **Performance Overhead:** The additional processing required at each layer can introduce performance overhead.
3. **Real-World Irrelevance:** Many modern protocols do not strictly adhere to the OSI model, making it less relevant in practical applications.

5. Conclusion

The OSI model is a valuable conceptual tool for understanding network communication and designing robust networking systems. While its layered approach offers clear benefits, its complexity and performance overhead make it less practical in many real-world scenarios where simpler models like TCP/IP are preferred.

tell me unit wise weightage for each chapter in computer network

Weightage Distribution Across Units

- Unit 2 – Data Link Layer & Medium Access Sublayer: ~45%
- Unit 3 – Network Layer: ~32%
- Unit 1 – Data Communication & Physical Layer: ~12%
- Unit 5 – Application Layer & Network Security: ~5%
- Unit 4 – Transport Layer: ~4%
- Unit 6 – Advanced / Supplementary Topics: ~3%

show me pyqs of 2019

Unit-wise Question Frequency

- Unit 2 – Data Link Layer & Medium Access Sublayer: 62 questions
- Unit 3 – Network Layer: 40 questions

Message ExamWISE...



ExamWISE can make mistakes. Consider checking important information.