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OSI Model & Networking Basics for Bank Exams - Computer Notes

Looking at papers of exams like **IBPS PO**, **SBI PO** and many other in banking sector, you will find questions on **Computer Awareness**. Moreover, **NABARD** has an entire section dedicated to **Computers Awareness**. Hence, it is very important that you prepare well for this section and secure high marks. In this article, we are providing basics and important **OSI Model and Networking Basics for Bank Exams** to study.

It includes information about **different types of networks** as well as **7 layer model of OSI**. You can download these OSI Model & Networking Notes for Bank Exams in PDF as well.

All About Network - Networking Basics for Bank Exams

A network consists of two or more computers that are linked through cables, telephone lines, radio waves, satellites, or infrared light beams in order to share resources such as printers and scanners, exchange files, or allow electronic communications. Following are the types of network.

- **Local Area Network** - A Local Area Network (LAN) is a network that is confined to a relatively small area. It is generally limited to a geographic area such as a writing lab, school, or building. They were developed in the 1980s, starting with the Ethernet. They enable members of an organization to share



databases, applications, files, messages and resources such as printers and Internet connections.

- **Wide Area Network** - Wide Area Networks (WANs) connect networks in larger geographic areas like a state, a country or the world.
- **Wireless Local Area Network** - A LAN based on Wi-Fi wireless network technology
- **Metropolitan Area Network** - A network spanning a physical area larger than a LAN but smaller than a WAN, such as a city. A single entity such as a government body or large corporation typically owns and operates.
- **Campus Area Network** - A network spanning multiple LANs but smaller than a MAN, such as on a university or local business campus.
- **Storage Area Network** - Connects servers to data storage devices through a technology like Fibre Channel.
- **System Area Network (Cluster Area Network)** - Links high-performance computers with high-speed connections in a cluster configuration.

Ethernet – A LAN protocol:

The Ethernet protocol is the most common LAN technology. It describes how networked devices can format data for transmission to other network devices on the same network segment, and how to put that data out on the network connection.

IPv4 and IPv6 – The Internet Protocols in OSI Model & Networking Basics for Bank Exams

IPv4 and IPv6 are different versions of the Internet Protocol - Internet Protocol version 4 (IPv4), Internet Protocol version 6 (IPv6). IPv6 is also called IPng (Internet Protocol next generation)

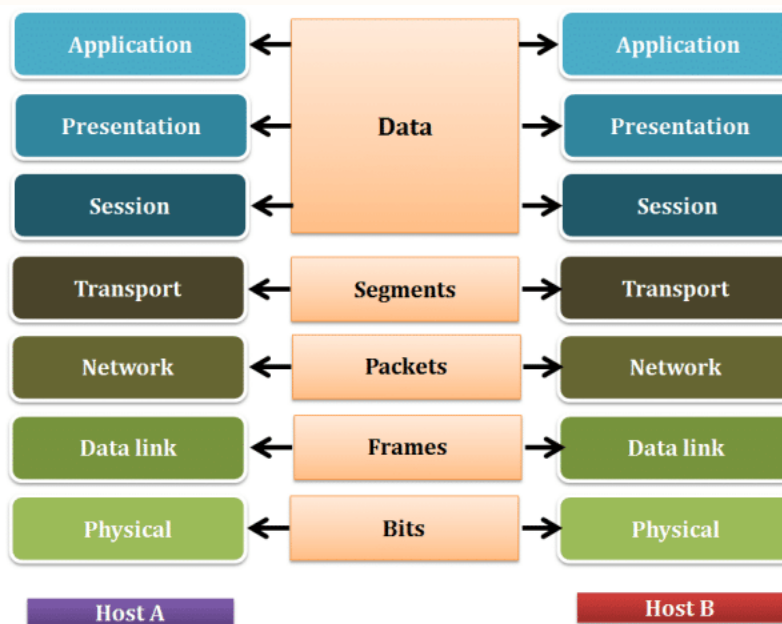


IP Address	IPv4	IPv6
	1. A 32-bit (4 bytes) numeric address written in decimal and separated by periods 2. nnn.nnn.nnn.nnn, where nnn is a number between 0 and 255 3. 1.160.11.129	1. A 128-bit (16 bytes) address written in hexadecimal and separated by colons 2. xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx 3. 3ffe:1900:4545:3:200:f8ff:fe21:67cf

Note: There are many differences between IPv4 and IPv6, but the structure of the IP address is the major one to note.

Open Systems Interconnection (OSI) Model

The **Open Systems Interconnection (OSI) model** defines a networking framework to implement protocols in layers, with control passed from one layer to the next.



⇒ Layer 7: Application layer

The application layer supplies network services to end-user applications. It provides services for the application program to ensure that effective communication with another application program in a network is possible.

⇒ Layer 6: Presentation layer

The presentation layer formats the data to be presented to the application layer. It can be viewed as the translator for the network. This layer converts data from a format used by the application layer into a common format at the sending station and converts the common format to a format known to the application layer at the receiving station.

⇒ Layer 5: Session layer

The session layer allows two application processes on different machines to establish, use and terminate a connection, called a session.



⇒ **Layer 4: Transport layer**

The transport layer ensures that message delivery is error-free, in sequence, and with no losses or duplication. It relieves the higher layer protocols from any concern with the transfer of data between them and their peers.

⇒ **Layer 3: Network layer**

The network layer provides data routing paths for network communication. Data is transferred in the form of packets via logical network paths in an ordered format that the network layer controls.

⇒ **Layer 2: Data link layer**

This layer sets up links across the physical network, putting **packets (structured bit stream)** into network frames. This layer has two sub-layers, the **Logical Link Control Layer** and the **Media Access Control Layer**.

The Logical Link Control Layer (LLC) is concerned with managing traffic (flow and error control) over the physical medium.

The Media Access Control (MAC) layer is responsible for moving data packets to and from one Network Interface Card (NIC) to another across a shared channel.

⇒ **Layer 1: Physical layer**

The physical layer, the lowest layer of the OSI model, is concerned with the transmission and reception of the **unstructured raw bit stream** over a physical medium. It provides the hardware means of sending and receiving data on a carrier network.



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