**Network+**  NT-ROUND-28

**GROUP-B**

**Chapter-2**

1. What is OSI Model?

Ans. The Open Systems Interconnection (OSI) reference model was created by the International Organization for Standardization (ISO). The OSI model has seven hierarchical layers that were developed to enable different networks to communicate reliably between disparate systems.

1. Describe about of OSI Model?

Ans. The Open Systems Interconnection (OSI) model is the primary architectural model for networks. It describes how data and network information are communicated from an application on one computer through the network media to an application on another computer. The OSI reference model breaks this approach into layers.

1. Which year OSI model created by ISO?

Ans: In the late 1970s, The Open Systems Interconnection (OSI) reference model was created by the International Organization for Standardization (ISO).

1. **Write down the step of OSI layer/** Write down list of OSI Model.

Answer :

1. Layer 7 : Application
2. Layer 6 : Presentation
3. Layer 5 : Session
4. Layer 4 : Transport
5. Layer 3 : Network
6. Layer 2 :Data Link
7. Layer 1 : Physical
8. **What are the sublayers of the Data Link layer?**

In addition to the OSI layers, knowing the only layer that has sublayers and the functions of those sublayers is extremely important.

The Data Link layer has two sublayers: LLC and MAC.

* **LLC**: The LLC sublayer is responsible primarily for the multiplexing of Network layer protocols.
* **MAC**: The MAC sublayer is responsible for physical addressing and determining the appropriate time to place data on the network.

1. **Advantages of Reference Models**  
   The OSI model is hierarchical, and the same benefits and advantages can apply to any  
   layered model. The primary purpose of all such models, especially the OSI model, is to  
   allow different vendors’ networks to interoperate.  
   Advantages of using the OSI layered model include, but are not limited to, the following:

* The OSI model divides the network communication process into smaller and simpler  
  components, thus aiding component development, design, and troubleshooting.
* It allows multiple-vendor development through standardization of network components.
* It encourages industry standardization by defining what functions occur at each layer  
  of the model.
* It allows various types of network hardware and software to communicate.
* It prevents changes in one layer from affecting other layers, so it doesn’t hamper development and makes application programming easier.

**3.** Which layer chooses and determines the availability of communicating partners  
along with the resources necessary to make the connection, coordinates partnering  
applications, and forms a consensus on procedures for controlling data integrity and  
error recovery?

**Answer**: The Application layer is responsible for finding the network resources broadcast from a  
server and adding flow control and error control (if the application developer chooses).

**4.** Which layer is responsible for converting frames from the Data Link layer into  
electrical signals?

**Answer**: The Physical layer takes frames from the Data Link layer and encodes the 1s and 0s  
into a digital signal for transmission on the network medium.

**5.** At which layer are routing implemented, enabling connections and path selection  
between two end systems?

**Answer**: The Network layer provides routing through an internetwork and logical addressing.

**6.** Which layer defines how data is formatted, presented, encoded, and converted?

**Answer**: The Presentation layer makes sure that data is in a readable format for the Application layer.

**7.** Which layer is responsible for creating, managing, and terminating sessions between  
applications?

**Answer**: The Session layer sets up, maintains, and terminates sessions between applications.

**8.** Which layer manages the transmission of data across a physical link and is primarily  
concerned with physical addressing and the ordered delivery of frames?

Answer: Protocol Data Units (PDUs) at the Data Link layer are called frames. As soon as you  
see *frame* in a question, you know the answer.

**9.** Which layer is used for reliable communication between end nodes over the network  
and provides mechanisms for establishing, maintaining, and terminating virtual circuits as well as controlling the flow of information?

Answer: The Transport layer uses virtual circuits to create a reliable connection between two hosts.  
  
**10.** Which layer provides logical addressing that routers use for path determination?  
Answer: The Network layer provides logical addressing, typically IP addressing, and routing.

**11.** Which layer specifies voltage, wire speed, and connector pin-outs and moves bits  
between devices?

Answer: The Physical layer is responsible for the electrical and mechanical connections  
between devices.

**12.** Which layer combines bits into bytes and bytes into frames and uses MAC addressing?

Answer: The Data Link layer is responsible for the framing of data packets.

**2.What is the function of Network Layer ?**

1. Network layer provides logical network addressing and routing through an internetwork.
2. Provides logical addressing, which routers use for path determination.

**3.What is function of Transport layer ?**

1. Transport layer provides segmentation, sequencing, and virtual circuits.
2. Provides reliable or unreliable delivery.
3. Performs error correction before retransmit.

**4.What is function of Data Link Layer ?**

Ans:

1. Data Link layer provides framing and placing of data on the network medium.
2. Combines packets into bytes and bytes into frames.  
   Provides access to media using MAC addresses.  
   Performs error detection, not correction.
3. The *Data Link layer* provides the physical transmission of the data and handles error notification, network topology, and flow control.

**5. What is the function of Physical Layer ?**

1. The Physical layer is responsible for taking 1s and 0s and encoding them into a digital signal for transmission on the network segment.
2. Moves bits between devices, specifies voltage, wire speed, and pin-out of cables.
3. **What is the function of Application Layer?**
4. File, print, message, database and application services.
5. Provides a user interface.

**7. What is the function of Presentation Later?**

1. Data encryption, compression and translation services.
2. This layer is essentially a translator and provides coding and conversion functions.
3. data compression, decompression, encryption, and decryption are associated  
   with this layer.

**8. What is the function of Session Layer?**

1. Keeps different application data separate.
2. Session layer is responsible for setting up, managing and then tearing down sessions between Presentation layer entities.
3. This layer also provides dialog control between devices, or nodes.
4. Session layer basically keeps applications data separate from other applications data.

Chapter-02

1. Write the advantage of reference model

Ans:

1. Reduces complexity; 2) Standardizes interfaces; 3) Facilitates modular engineering; 4) Interoperability between Vendors; 5) Ensures interoperable technology; 6) Accelerates evolution; 7) Simplifies teaching and learning;
2. OSI reference model-

Ans:7)Application; 6) Presentation; 5)Seession; 4)Transport; 3) Network; 2) Data-Link; 1) Physical;

1. The Application Layer

Ans: An **application layer** is an abstraction layer that specifies the shared protocols and interface methods used by hosts in a communications network. The **application layer** abstraction is used in both of the standard models of computer networking; the Internet Protocol Suite (TCP/IP) and the Open Systems Interconnection model (OSI model).Although both models use the same term for their respective highest level layer, the detailed definitions and purposes are different.

1. The Presentation Layer

Ans: The presentation layer is responsible for the delivery and formatting of information to the application layer for further processing or display.[4] It relieves the application layer of concern regarding syntactical differences in data representation within the end-user systems. An example of a presentation service would be the conversion of an EBCDIC-coded text computer file to an ASCII-coded file.

1. The Session Layer

Ans: The session layer provides the mechanism for opening, closing and managing a session between end-user application processes,a semi-permanent dialogue. Communication sessions consist of requests and responses that occur between applications.

1. The Transport Layer

Ans: In computer networking, the transport layer is a conceptual division of methods in the layered architecture of protocols in the network stack in the Internet Protocol Suite and the Open Systems Interconnection (OSI). The protocols of the layer provide host-to-host communication services for applications.[1] It provides services such as connection-oriented data stream support, reliability, flow control, and multiplexing.

1. Connection oriented communication

Ans; Connection-oriented (CO-mode[1]) communication is a network communication mode in and computer networking, where a communication session or a semi-permanent connection is established before any useful data can be transferred, and where a stream of data is delivered in the same order as it was sent.’

1. Flow control

Ans: In data communications, flow control is the process of managing the rate of data transmission between two nodes to prevent a fast sender from overwhelming a slow receiver. It provides a mechanism for the receiver to control the transmission speed, so that the receiving node is not overwhelmed with data from transmitting node.

1. Windowing

Ans: In computing, a windowing system (or window system) is a type of graphical user interface (GUI) which implements the WIMP (windows, icons, menus, pointer) paradigm for a user interface. Each currently running application is assigned a usually resizeable and usually rectangular shaped surface of the display to present its graphical user interface to the user; these windows may overlap each other, as opposed to a tiling interface where they are not allowed to overlap.

1. Acknowledgement

Ans: Reliable data delivery ensures the integrity of a stream of data sent from one machine to the other through a fully functional data link. It guarantees that the data won’t be duplicated or lost. This is achieved through something called positive acknowledgment with retransmission—a technique that requires a receiving machine to communicate with the transmitting source by sending an acknowledgment message back to the sender when it receives data.

1. The Network Layer

Ans: In the seven-layer OSI model of computer networking, the network layer is layer 3. The network layer is responsible for packet forwarding including routing through intermediate routers, whereas the data link layer is responsible for media access control, flow control and error checking.

1. The Data Link Layer

Ans: The data link layer provides the functional and procedural means to transfer data between network entities and might provide the means to detect and possibly correct errors that may occur in the physical layer.

1. The Physical Layer

Ans: The physical layer consists of the basic networking hardware transmission technologies of a network. It is a fundamental layer underlying the logical data structures of the higher level functions in a network. Due to the plethora of available hardware technologies with widely varying characteristics, this is perhaps the most complex layer in the OSI architecture.

1. Encapsulation

Ans: encapsulation is a method of designing modular communication protocols in which logically separate functions in the network are abstracted from their underlying structures by inclusion or information hiding within higher level objects.

1. What is data encapsulation?

Ans. Data encapsulation, sometimes referred to as data hiding, is the mechanism whereby the implementation details of a class are kept hidden from the user. The user can only perform a restricted set of operations on the hidden members of the class by executing special functions commonly called methods*.*

What is the OSI Reference Model?

One of the greatest functions of the OSI specifications is to assist in data transfer between

Disparate. The OSI model has seven layers:

Application (Layer 7)

Presentation (Layer 6)

Session (Layer 5)

Transport (Layer 4)

Network (Layer 3)

Data Link (Layer 2)

Physical (Layer 1)

What is Application Layer?

Application layer is the top most layers in OSI and TCP/IP layered model. This layer exists in both layered Models because of its significance, of interacting with user and user applications. This layer is for applications which are involved in communication system.

What is Presentation Layer?

In the seven-layer OSI model of computer networking, the presentation layer is layer 6 and serves as the data translator for the network. It is sometimes called the syntax layer.

**What is Session Layer?**

In the seven-layer OSI model of computer networking, the session layer is layer 5. The session layer provides the mechanism for opening, closing and managing a session between end-user application processes, i.e., a semi-permanent dialogue.

What is Transport Layer?

In computer networking, the transport layer is a conceptual division of methods in the layered architecture of protocols in the network stack in the Internet Protocol Suite and the Open Systems Interconnection (OSI). The protocols of the layer provide host-to-host communication services for applications.

Question

3.How many layer in Osi model?

Ans:The OSI model has seven Layers.

4.Write the seven OSI model Layer.

Ans:a)Application b)Presentation C)Session d)Transport E)Network f)Data link g)Physical.

5.What is application Layer?

Ans: The *Application layer* of the OSI model marks the spot where users actually communicate with the computer (technically users communicate with the network stack through application processes interfaces or APIs that connect the application in use to the operating system of the computer).

6.What is presentation Layer?

Ans: The Presentation layer gets its name from its purpose: It presents data to the Application

layer and is responsible for data translation and code formatting.

7.What is Session Layer?

Ans: The Session layer is responsible for setting up, managing, and then tearing down sessions

between Presentation layer entities. This layer also provides dialog control between devices,

or nodes.

8.What is Transport Layer?

Ans: The Transport layer segments and reassembles data into a data stream.

9.What is Network Layer?

Ans:

.Which Layer Maintaining Flow Control?

Ans:The Transport Layer by Maintaining Flow Control.