2nd Assignment
Subject: Computer Network
Roll-call: WRC078BEI048

Q1. Differences Between OSI Model & TCP/IP model.

Ans: The differences between OSI model and TCP/IP model are:-

OSI model	**TCP/IP model**
It is seven layered reference model.	It is four layered model.
Online work is not supported	Working on the Internet relies on TCP/IP
The difference between services, interfaces, and protocols is clearly defined	This model cannot distinguish between protocols, interfaces, and services.
The network layer provides both connection-oriented and connectionless services.	The internet layer provides connectionless services.
The transport layer offers only connection-oriented services.	The transport layer provides both connection-oriented and connectionless services.
In the OSI model, protocols are more easily interchangeable and are preferably kept hidden.	Because they are not concealed, TCP/IP protocols are challenging to replace.

Q2. Differences between client server and peer to peer network.

Ans: The differences between client server and peer to peer network are: -

Client server network	Peer to peer network
A central server supplies resources and services to multiple clients, which rely on it for their operations.	Every node (peer) in the network possesses equal status and can function as both clients and servers.
Servers oversee resources and manage client requests, while clients request and utilize the services offered by the server.	Resources and services are distributed among all peers, with each node having the potential to share its own resources.
Centralized control facilitates easier management and enforcement of security measures.	The absence of a central authority can make security more intricate, necessitating cooperation among peers for implementing security measures.
Usually scaled through upgrades in server hardware and software; more manageable when centralized.	Horizontal scaling is achieved by adding more peers, resulting in increased resources as additional nodes join.

Q3. What are the seven layers of OSI model, What is the function of each layer?
Ans: The OSI (Open Systems Interconnection) model has seven layers, each with specific functions:

1. **Physical Layer**:
   - Function: It encompasses the physical connection between devices, involving the transmission of raw bitstreams over a physical medium. It specifies hardware components such as cables, switches, and network interface cards.

2. **Data Link Layer**:
   - Function: It facilitates node-to-node data transfer, error detection and correction, and flow control. It governs the link between directly connected nodes and frames the data.

3. **Network Layer**:
   - Function: It oversees the routing and forwarding of data packets between nodes on distinct networks. It identifies the optimal path for data transfer and oversees logical addressing (IP addresses).

4. **Transport Layer**:
   - Function: It guarantees dependable data transfer between end systems, incorporating error recovery and flow control. It

furnishes end-to-end communication services and oversees data segmentation and reassembly.

5. **Session Layer**:
   - Function: Manages sessions or connections between applications. It establishes, maintains, and terminates sessions, ensuring orderly data exchange and synchronization.

6. **Presentation Layer**:
   - Function: It translates data between the application layer and the network. It manages data encryption, compression, and the conversion of data formats (e.g., from EBCDIC to ASCII).

7. **Application Layer**:
   - Function: It furnishes network services directly to end-user applications. This encompasses protocols for specific data communications services on a network, such as HTTP for web browsing, FTP for file transfer, and SMTP for email.

Q4. What are the principles behind OSI model.

Ans: The OSI model is based on several key principles:

1. **Layered Approach**: The model is segmented into seven distinct layers, each tasked with specific functions, aiming to reduce complexity by compartmentalizing various network tasks.

2. **Interoperability**: It ensures interoperability among hardware and software from different vendors by adhering to standardized protocols.
3. **Modularity**: Each layer functions independently, meaning modifications in one layer generally do not impact others, facilitating easier updates and enhancements.
4. **Encapsulation**: Data is packaged with the necessary protocol information as it moves through the layers, allowing each layer to add its own headers and trailers.
5. **Decoupling**: The network architecture is segmented into layers, enabling services provided by one layer to be designed and modified independently of others.
6. **Standardization**: Encourages the adoption of universally accepted protocols and interfaces, simplifying communication and integration across diverse systems.
7. **Comprehensive Model**: Encompasses all facets of network communications, spanning from physical connections to application-level interactions, offering a comprehensive framework for comprehending and crafting networks.