Assignment:

Qn 1 ⇒ Differentiation between Client Server & peer-to-peer network.

	Client Server Network	Peer-to-Peer Network
1.	Differentiated clients and servers.	No differentiation between clients and servers.
2.	Focuses on information sharing	Focuses on connectivity.
3.	Uses a centralized server for data storage.	Each peer stores its own data
4.	Server responds to client requests.	Each node can request and respond.
5.	More costly.	Less costly
6.	More stable	Less stable with increased peers.
7.	Suitable for both small & large network	Suitable for small network.

Qn2⇒ Differentiation between OSI model & TCP/IP model

OSI Model	TCP/IP Model
1. It is seven-layered reference model	1. It is four-layered reference model.
2. Internetworking is not supported	2. TCP/IP supports internet working
3. It clearly distinguishes between services, interfaces and protocols.	3. This model fails to distinguish between services, interfaces and protocols.
4. Network layer provides both connectionless and connection-oriented services.	4. The internet layer provides connectionless service.
5. Transport layer provides only communication-oriented service	5. Transport layer provides both connection-oriented and connectionless service.
6. Protocols in the OSI model are better hidden and can be replaced relatively easily	6. Protocols in TCP/IP are not hidden and thus cannot be replaced easily.

Qn3. → The seven layers of OSI model with their applications :

1. Physical layer:
   - It deals with the physical connection between devices.
   - It transmits raw bit streams over a physical medium.
   - It includes cables, switches and other hardware.

2. Data Link layer:
   - It ensures reliable transmission of data across the physical network.
   - It manages error detection and correction from the physical layer.
   - Examples includes Ethernet and MAC addresses.

3. Network Layer:
   - It handles the data packets across the network.
   - It determines the best physical path for data to reach its destination.
   - Protocols like IP (Internet Protocol) operate at this layer.

4. Transport Layer:
   - It ensures complete data transfer and manages end-to-end communication.
   - It provides error checking, flow control and data recovery.

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   - Protocols include TCP (Transmission Control Protocol) and UDP (User Datagram Protocol).

5. Session Layer:
   - It manages sessions or connection between applications.
   - It establishes, maintains and terminates connections.
   - It co-ordinates communication between systems.

6. Presentation Layer:
   - It translates data between the application layers and the network.
   - It ensures that data is in a usable format.
   - It handles data encryption, decryption, compression and translation.

7. Application Layer:
   - It's closest to end user.
   - It provides network services directly to applications.
   - It includes protocols like HTTP, FTP, SMTP and DNS.

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Qn 4=) The principles of OSI model :

(i) A layer should be created where a different abstraction is needed.

(ii) Each layer should perform a well-defined function.

(iii) The function of each layer should be choosen with an eye toward defining internationally standardized protocols.

(iv) The layer boundaries should be choosen to minimize the information flow across the interfaces.

(v) The number of layers should be large enough that distinct functions need not be thrown together in the same layer out of necessity and small ~~though~~ enough that architecture does not become unwieldy.