Assignment - 2

1) Differentiate between OSI model and TCP/IP model.

↳ The differences between OSI and TCP/IP model are as follows:

OSI model	TCP/IP model
i) It consists of 7 layers.	i) It consists of 5 layers.
ii) Transport layer guarantee delivery of packages.	ii) Transport layer may not guarantee the delivery of package.
iii) OSI layer has seperate session layers & presentation layers.	iii) No session and presentation layer, characteristics are provided by application and transport layer.
iv) Network layer provides both connectionless and connection oriented services.	iv) Network layer provides only connectionless services.
v) Protocals are better hidden and can be easily replaced as technology changes.	v) Not easy to replace the protocals.

2) Differentiate between peer to peer and client/server model.

↳ The differences between peer to peer and client/server model are as follows.

peer to peer model	client/server model
i) All nodes are equal responsible.	i) Here, clients requests & server provides services.
ii) Communication is direct between peer nodes.	ii) Communication is client-s and request/response type.

iii) It is highly scalable.	iii) It is difficult to scale.
iv) Highly robust.	iv) Moderately robust.
v) Security is low and harder to manage.	v) Security is high and easier to manage.
vi) Management is difficult.	vi) Management is easy.
vii) performance is inconsistent.	vii) performance is consistent and reliable.
viii) Costs lower	viii) costs higher
ix) Examples, Bit torrent, Blockchain, etc.	ix) examples, web servers, email servers.

3) What are the different layers of OSI model and what are their functions. Describe.

↳ There are 7 different layers in OSI model. They are

1. Application Layer
2. Presentation layer
3. session layer
4. Transport layer
5. Network layer
6. Data link layer
7. Physical layer

1. Application layer

↳ provides interface between host communication software and any external application.

↳ provides standards for supporting a variety of

application independence services. examples, message handling system standard used for e-mail, virtual terminal standard, file transfer access between different system.

2. Presentation layer –
   - ↳ concerns with syntax and semantics of the information transmitted.
   - ↳ provides a mutually agreeable binary representation of the application data between user processes.

3. Session layer
   - ↳ Allows users on different machines to establish session between them
   - ↳ Includes setting of various communication

4. Transport layer
   - ↳ It accepts data from above layer, split it up into similar units, passes them to lower layer isolating from each other.
   - ↳ Manages end to end connection and data delivery between two hosts.

5. Network layer
   - ↳ provides routing and related functions that enable multiple data links to be combined into an inter network
   - ↳ Some functions are routing and forwarding, congestion control, packet handling, etc.

6. Data link layer
↳ concerned with reliable transfer of data over the communication channel provided by the physical layer.
↳ It breaks the data into data frames, transmit the frames sequentially, over the channel, checks for transmission error by receiving acknowledgemen frame.

7. Physical layer
↳ concerned with the transmission of raw data bits over communication link.
↳ It is implemented in the hardware of the networking device.

④ What are the principles behind OSI model?
↳ The principles behind OSI model are as follows:
i) To divide the complex model of communication into seven smaller and manageable layers.
ii) To make the working of each layer independently.
iii) It enables data encaplusation.