1. the 7-layer OSI reference model and the TCP/IP model. In 300 words, write a write up on the difference between

* The **OSI model** and the **TCP/IP model** are two different models that are used to describe how data is transmitted over a network.
* The OSI model has 7 layers while the TCP/IP has 4 layers.
* Layers of the OSI models are as follows:

1. Physical layer - its protocols describe the mechanical, electrical, functional, and procedural means to activate, maintain, and deactivate physical connections for a bit transmission to and from a network device.
2. Data Link layer - its protocols describe methods for exchanging data frames between devices over a common media.
3. Network layer - provides services to exchange the individual pieces of data over the network between identified end devices.
4. Transport layer - defines services to segments, transfers, and reassembles the data for individual communications between the end devices.
5. Session layer - provides services to the presentation layer to organize its dialogue and to manage data exchange.
6. Presentation layer - provides for common representation of the data transferred between application layer services.
7. Application layer – contains protocols used for process-to-process communications.

* The TCP/IP model consists of the following layers:

1. Network Interface layer - controls the hardware devices and media that make up the network.
2. Internet layer - determines the best path through the network.
3. Transport layer - supports communication between various devices across diverse networks.
4. Application layer - represents data to the user, plus encoding and dialog control.

* The main difference between these two models can be described using the approach used when handling and transmission of data, in which case the OSI model uses a vertical approach while the TCP/IP model is a horizontal approach
* Though they are two different models, they have similar characteristics as well which are as follows:

1. Both models use a layered approach to describe how data is transmitted over a network.
2. Both models have a layer that is responsible for handling data transmission between different networks, the transport layer.
3. Both models have a layer that is responsible for handling data transmission between different devices on the same network, the Internet layer.