**ASSIGNMENT ONE: NETWORK SYSTEM ADMINISTRATION**

**UNIT CODE: BIT 2204**

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The **OSI** (Open Systems Interconnection) and **TCP/IP** (Transmission Control Protocol/Internet Protocol) models are conceptual frameworks, used to understand and design networked computer systems. They provide a layered, modular approach to networking, though the models themselves have key differences.

**Similarities:**

* **Layered architecture** - Both models use layers to break down the functions of networking into modular components that work together. This provides abstraction to manage complexity.
* **Adjacent layer interaction** - In both models, each layer leverages the functions of the layer below it and provides services to the layer above it. This allows modular interaction.
* **Encapsulation** - Information is encapsulated with headers, footers and packaging as it moves through layers in both models. This facilitates standardized interfaces.
* **Application layer purpose** - The top application layer of both models handles data formatting, communication semantics and other functions needed for applications.

**Differences:**

* **Number of layers** - The OSI model has 7 distinct layers, while TCP/IP has only 4 layers. The OSI model separates more functions into distinct layers.
* **Layer names** - Aside from the application layer, the names of layers in each model differ given their different purposes. OSI aims for open interconnection while TCP/IP focuses on standard protocols.
* **Combination of layers** - TCP/IP combines the *OSI* physical and data link layers into its single link layer. It also combines OSI's network, transport and session layers into just two layers - Internet and transport. *TCP/IP* simplifies functions into fewer layers.
* **Development history** - OSI was developed later by an international standards organization, while TCP/IP emerged earlier from research projects connected to the development of the Internet and *ARPANET.*
* **Focus** - OSI is more theoretical and aimed at open communication between different systems. TCP/IP is more practical and focused on providing standardized protocols and practical implementation.