**Tutorial 6**

1. A packet-switched network consists of Network core and Network Edge. Explain each.

* **Network Core**
* Made up from routers and control system interconnected by very high bandwidth communication channels
* **Network Edge**
* Network edge where the end-user systems/hosts reside.

1. Define the term Protocol and Host

* **Protocol** - A discipline for communication, it specifies the actions taken by the sender and the receiver of a data unit
* **Host** - A system located at the network edge capable to initiate and to receive communication. E.g. computer, router, mobile device, sensor.

1. List and explain TWO (2) transport protocols.

* **UDP (User Datagram Protocol)** - a connectionless datagram protocol. The UDP transport protocol assumes that error checking and error correction are either not necessary or performed by the application. Datagrams may arrive out of order, duplicated, or may not arrive at all
* **TCP (Transmission Control Protocol)** - a connection-oriented protocol. TCP provides reliable, order delivery of stream of bytes from an application on one system to its peer on the destination system

1. Identify TWO (2) major differences between IPV4 and IPV6

| **IPv4** | **IPv6** |
| --- | --- |
| IPv4 has an addressing capability of 2^32 | IPv6 has an addressing capability of 2^128 |
| IPv4 supports traditional IP broadcast | IPv6 supports new multicast solutions |
| IPv4 must configure the network by manually or using Dynamic Host Configuration Protocol (DHCP) | IPv6 hosts can configure themselves automatically when connected to a routed IPv6 network using the Internet Control Message Protocol version 6 |
| IPv4 security protocol is depending mostly on applications. | IPv6 has its own security protocol which is Internet Network Security (IPsec) |

1. What is Internet Exchange Point (IXP)?

* **Internet Exchange Point (IXP)** is a physical infrastructure allowing ISPs to exchange Internet. It allows networks to interconnect directly via the exchange rather than through one or more third-party networks

| Notes for IXP:   * For example, an e-commerce website which allows users to make payments within this website instead of log in to the third-party bank website to make the payment. * Next, IXP examples in social media such as Facebook and Instagram. Facebook or Instagram user can switch between these two media social |
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