Course Name: O Level (2nd Sem) **Subject: ICT**

Topic: Ethernet **Date: 26-05-20**

Ethernet: Ethernet is a technical terminology for the LANs standardized by IEEE. Not every LAN is an Ethernet. To be an Ethernet, a LAN must follow the guidelines provided in the IEEE-802 standard. Here IEEE 802 is the standardization number for Ethernets.

Depending upon different data rates, Ethernet standards are classified in the following categories:

1. Standard Ethernet (up to 10 Mbps)
2. Fast Ethernet (up to 100 Mbps)
3. Gigabit Ethernet (up to 1 Gbps)
4. 10-Gigabit Ethernet (up to 10 Gbps)

Standard Ethernet: This is the very basic Ethernet specification. The internal data-rate in these networks is up to 10 Mbps. Following are the specifications in standard Ethernet:

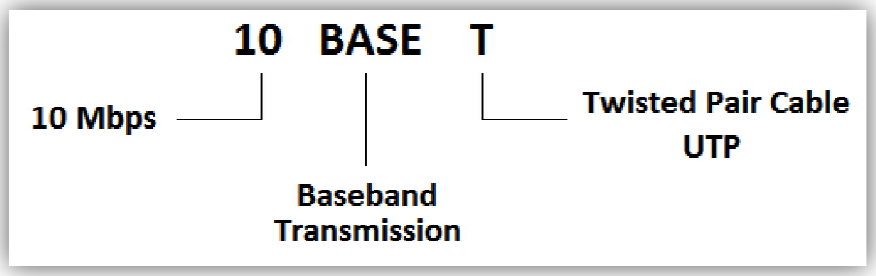
a) **10 BASE T**
(Media- UTP, Topology- Star, Distance- 100m)

b) **10 BASE F**
(Media- OFC, Topology- Star/Ring, Distance- 2000m)

c) **10 BASE 2**
(Media- Thin Coaxial, Topology- Bus/Ring, Distance- 200m / usually 180m)

d) **10 BASE 5**
(Media- Thick Coaxial, Topology- Bus/Ring, Distance- 500m)

Consider the diagram-



Here in this diagram, the technical meanings of an Ethernet specification is given as-

In **10-BASE-T**, 10 is the data rate (10Mbps), BASE is baseband transmission and T is UTP Cable.

NOTE: In Ethernet standards, the data rate is relative to the names of standards like-

- In Standard Ethernet, data rate is 10Mbps hence its standards start with, 10-BASE-*
- In Fast Ethernet, data rate is 100Mbps hence its standards start with, 100-BASE-*
- In Gigabit Ethernet, data rate is 1000Mbps (or 1Gbps) hence its standards start with, 1000-BASE-*
- In 10-gigabit Ethernet, data rate is 10000Mbps (or 10Gbps) hence its standards start with, 10G-BASE-*

Assignments:

1. What do you understand by Signal impairment?
2. How is a noisy signal different from a distorted signal?