Bahria University

Karachi Campus



LAB EXPERIMENT NO.

02

LIST OF TASKS

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| **TASK NO** | **OBJECTIVE** |
| 1 | Define following network terminologies   * EIA/TIA 568A and 568B standards * Color combination of straight and cross Ethernet cable * Unshielded Twisted Pair (UTP) & Shielded Twisted Pair (STP) * Straight Through and Cross-over Ethernet Cable * RJ-45 connector |
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Submitted On:

**04-10-2023**

(Date: DD/MM/YY)

**Task # 01:**

**DEFINITIONS:**

**EIA/TIA 568A and 568B standards:**

EIA/TIA 568A and 568B standards are industry guidelines established by the Electronic Industries Alliance (EIA) and the Telecommunications Industry Association (TIA) to standardize the wiring and connectivity of Ethernet cables. These standards define the pinout configurations for Ethernet cables, specifying how wires should be connected to RJ-45 connectors to ensure compatibility and consistency in network installations. Both 568A and 568B standards have distinct wiring patterns, and they are used for different purposes, such as straight-through or crossover connections.

**Color combination of straight and cross Ethernet cable:**

The color combination of straight and crossover Ethernet cables is an essential aspect of network cabling. In a straight-through cable, both ends follow the same wiring standard, either 568A or 568B. The color-coded pairs of wires within the cable are matched identically on both ends, allowing data to flow directly from one device to another, like a computer to a switch or router. Conversely, in a crossover cable, one end follows the 568A standard, while the other follows 568B. This configuration enables direct communication between two similar devices, like connecting two computers without the need for a network switch.

**Unshielded Twisted Pair (UTP) & Shielded Twisted Pair (STP):**

Unshielded Twisted Pair (UTP) and Shielded Twisted Pair (STP) are types of Ethernet cables. UTP cables are the most common and cost-effective option for networking. They consist of pairs of twisted copper wires surrounded by a plastic insulator. STP cables, on the other hand, have an additional metal foil or braided shield around the twisted pairs, offering better protection against electromagnetic interference (EMI) and external noise. STP cables are often used in environments where EMI is a concern, like industrial settings.

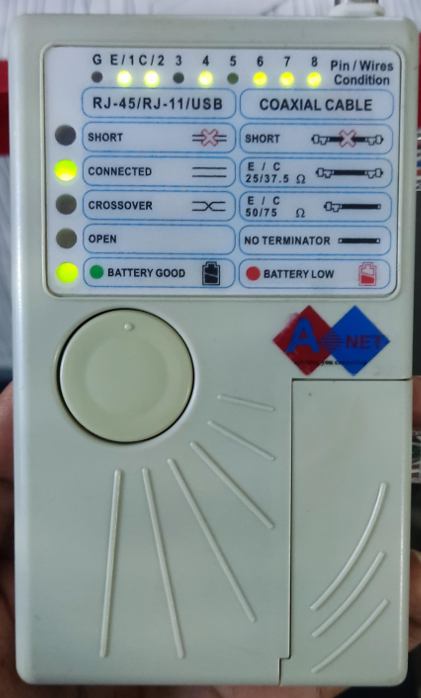
**Straight Through and Cross-over Ethernet Cable:**

A Straight Through Ethernet Cable is a common type of Ethernet cable where both ends of the cable follow the same wiring standard (either 568A or 568B). It is used for connecting different types of devices, such as computers to switches or routers. A Cross-over Ethernet Cable, as mentioned earlier, is wired with one end following the 568A standard and the other following the 568B standard. It is used for connecting similar devices directly to each other, such as two computers or two switches, without the need for an intermediary device like a network switch.

**RJ-45 connector:**

An RJ-45 connector is a standardized connector used to terminate the ends of Ethernet cables. It has eight pins that align with the eight wires inside the cable. RJ-45 connectors are designed to be easily crimped onto the cable's ends, providing a secure and reliable connection to networking equipment. These connectors are essential components in creating Ethernet cables, ensuring proper connectivity and adherence to the 568A or 568B wiring standards for the specific network configuration needed.

**Task # 02/CLASS ACTIVITY:**

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