SNS COLLEGE OF TECHNOLOGY

COIMBATORE-35

DEPARTMENT OF INFORMATION TECHNOLOGY

ACADEMIC YEAR 2024 – 2025 (ODD SEMESTER)

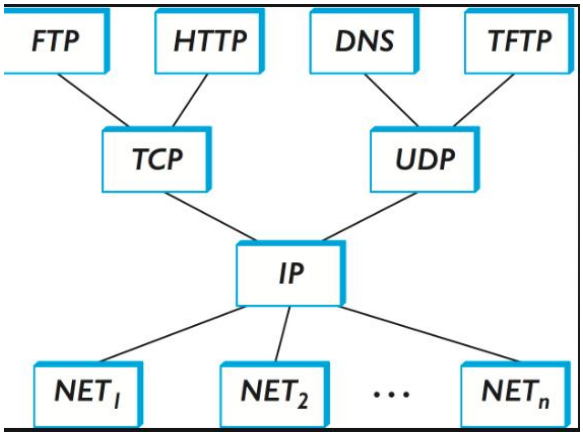
19CSB302 - COMPUTER NETWORKS

UNIT -I
FUNDAMENTALS AND PHYSICAL LAYER

Internet Architecture refers to the structure and design of the interconnected networks on the Internet,which allows routers to route packets based on the destination network.The purpose of layering in Internet architecture is to break down the problem of designing and building a network into more manageable parts. It allows for modular design, where the functionality of only a single layer might need to be modified while preserving the functionality of the remaining layers.

The layer architecture defines how traffic is transported through a network and allows us to visualize how communication proceeds through the protocol software when traversing a TCP/IP internet.The layering model employed reflects the software engineering mindset of the time, modular programming and information hiding. The idea of modular programming is that more understandable, and therefore more robust, software can be written when the software structure is decomposed into modules of small size, with localized concerns or a particular data object.

Information hiding is a discipline that limits the flow of information between modules by limiting data sharing to a small number of carefully type-checked parameters. In the case of Internet architecture, the concerns are localized in the layers, and the information-hiding discipline is enforced by the implementation, which passes information either in the data structure for representing the packets or the limited additional information used in procedure calls between layers.



The Internet architecture has several layers, including the sensing layer, network layer, service layer, and application-

interface layer. The sensing layer is responsible for sensing and acquiring information from connected devices. The network layer supports the connection between wireless or wired devices. The service layer provides and manages services required by users and/or applications. The application-interface layer consists of the methods of interaction between the users and applications. These layers are important to the design of the IoT framework, including technical factors, security protection, and business issues.