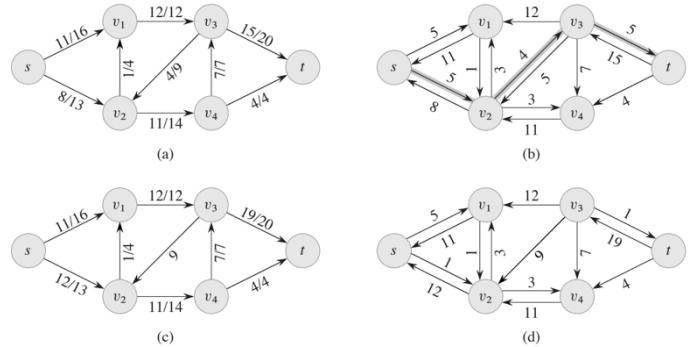


# EXPERIMENT 7

**Objective:** Implementation of Ford-Fulkerson algorithm to find maximum flow.

## Brief Theory:

The Ford-Fulkerson algorithm is used to compute the **maximum flow** in a flow network. It is based on the concept of augmenting paths and repeatedly increasing the flow along these paths until no more paths can be found.



## Key Concepts:

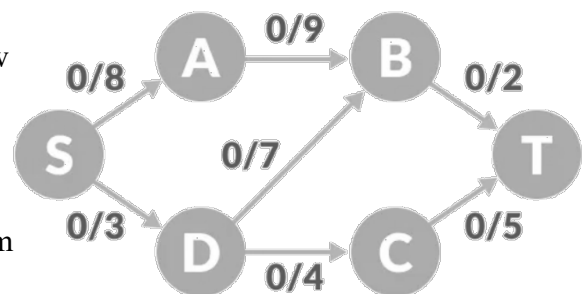
1. Flow Network: A directed graph where each edge has a capacity and a flow value.
2. Residual Graph: Represents the remaining capacities of the edges after accounting for the current flow.
3. Augmenting Path: A path from the source to the sink in the residual graph where additional flow can be pushed.

### FORD-FULKERSON-METHOD( $G, s, t$ )

- 1 initialize flow  $f$  to 0
- 2 **while** there exists an augmenting path  $p$  in the residual network  $G_f$
- 3     augment flow  $f$  along  $p$
- 4 **return**  $f$

## Tasks:

- 1) Create the max flow of the given network and show with graphical representation.
- 2) Write a program to accept a flow network (nodes, edges, capacities) and display the initial residual graph.
- 3) Implement a simple DFS or BFS to find a path from the source to the sink in a flow network.



**Apparatus and components required:** Computer with C or C++ Compiler and Linux/Windows platform.

**Experimental/numerical procedure:** Coding, compilation, editing, run and debugging.