

## *Programming Assignment #1*

### *Signal Flow Graph*

#### **Given:**

Signal flow graph representation of the system. Assume that total number of nodes and numeric branches gains are given.

#### **Required:**

- 1- Graphical interface.
- 2- Draw the signal flow graph showing nodes, branches, gains, ...
- 3- Listing all forward paths, individual loops, all combination of  $n$  non-touching loops.
- 4- The values of  $\Delta, \Delta_1, \dots, \Delta_m$  where  $m$  is number of forward paths.
- 5- Overall system transfer function.

#### **Notes:**

- Report should include:
  1. Problem Statement.
  2. Main Features of the program and additional options if exists.
  3. Data Structure.
  4. Main modules.
  5. Algorithms used.
  6. Sample runs.
  7. Simple user guide.
- Use any programming language you want.
- You can work on this project in groups of two.