

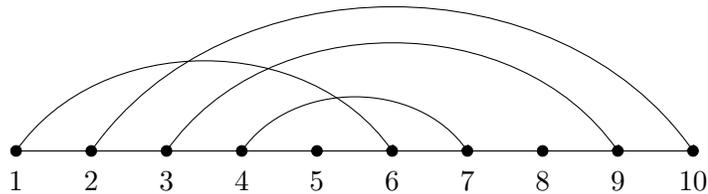
# MthSc 985: Topics in Discrete Mathematical Biology (Fall 2011)

## Quiz 7 (20 points)

NAME:

**Instructions:** Answer each of the following questions completely. If something is unclear, or if you have any questions, then please ask. Good luck!

1. (5 points) Let  $d$  be the arc diagram picture below. Draw its  $L$ -graph,  $L(d)$ .



2. (5 points) Define a *multi-loop* of a  $k$ -noncrossing RNA structure. Use the terminology of arcs  $(i, j)$  and sequences  $[k, \ell]$  of isolated vertices, and substructures.

3. (10 points) Draw the arc diagram of a *balanced pseudoknot*, and an *unbalanced pseudoknot*. Clearly mark which edges and vertices are part of the pseudoknot. For example, you can draw the vertices as circles, and fill in the vertices of the pseudoknot.