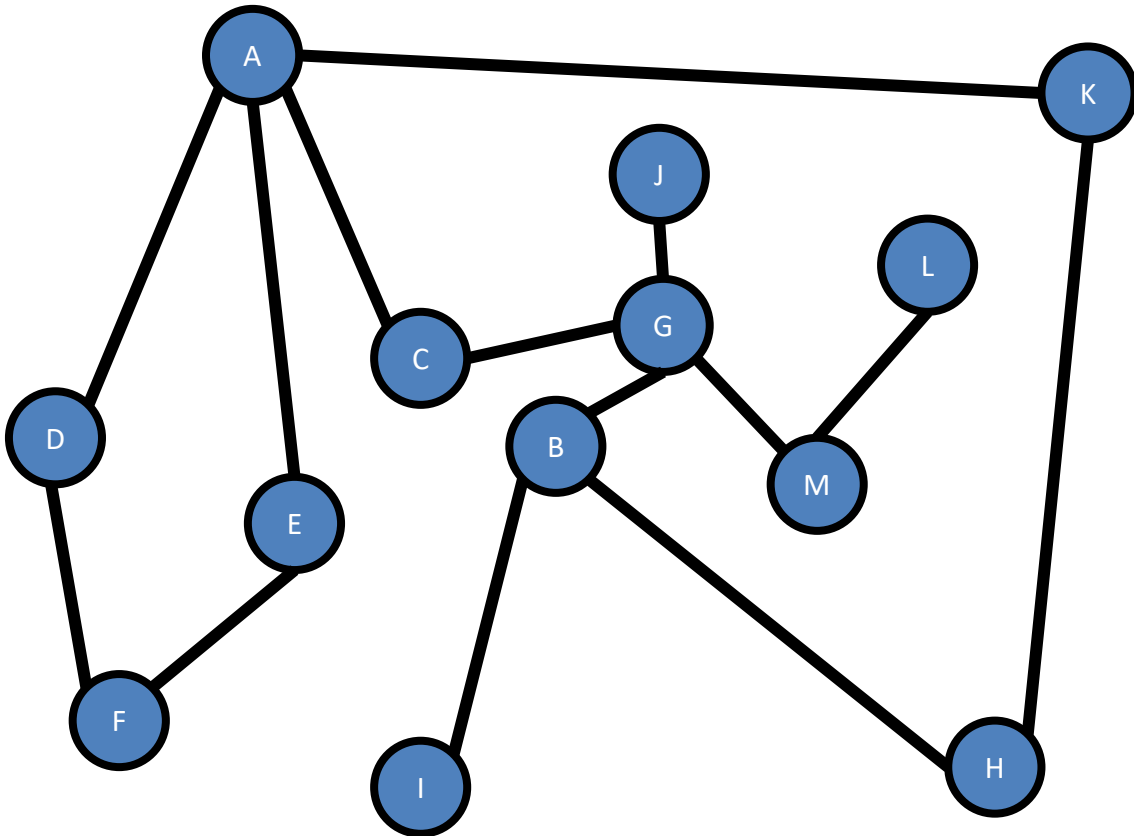# Assignment 6

COMP 2100
Due: November 15, 2024

Hint: PowerPoint is an excellent tool for drawing graphs. The results can be pasted into Word.

1. Is the following graph a bipartite graph? If it is, find a maximum matching between its nodes. If it is not, explain why not.

2. Consider the following multigraph. Does it have an Euler path, an Euler tour, or neither? If it has an Euler path or an Euler tour, list the nodes in an order they could be visited to make a path or a tour. If the multigraph has neither an Euler path nor an Euler tour, explain why.
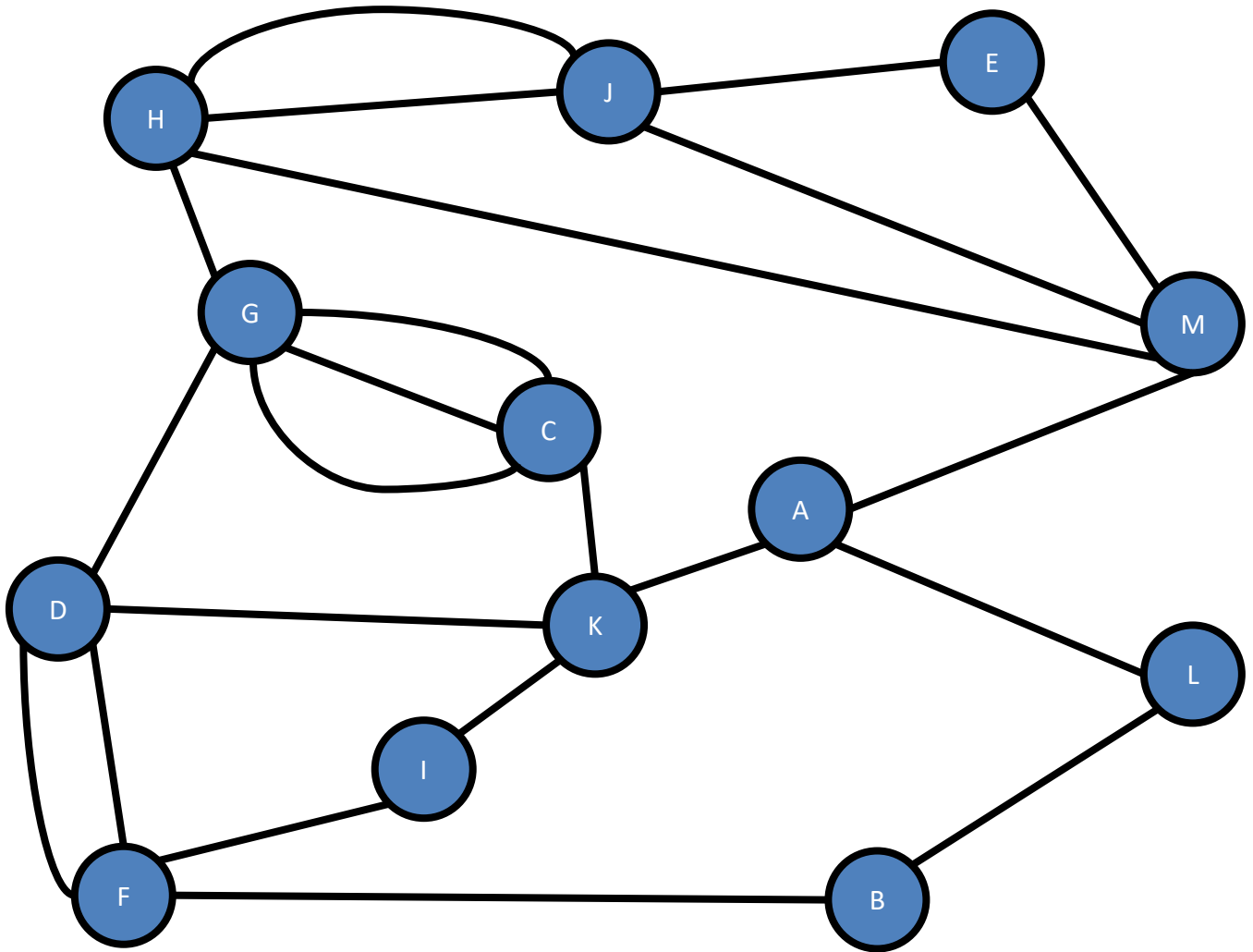
3. Find the maximum flow from **s** to **t** in this flow network and show the capacity used on each edge.
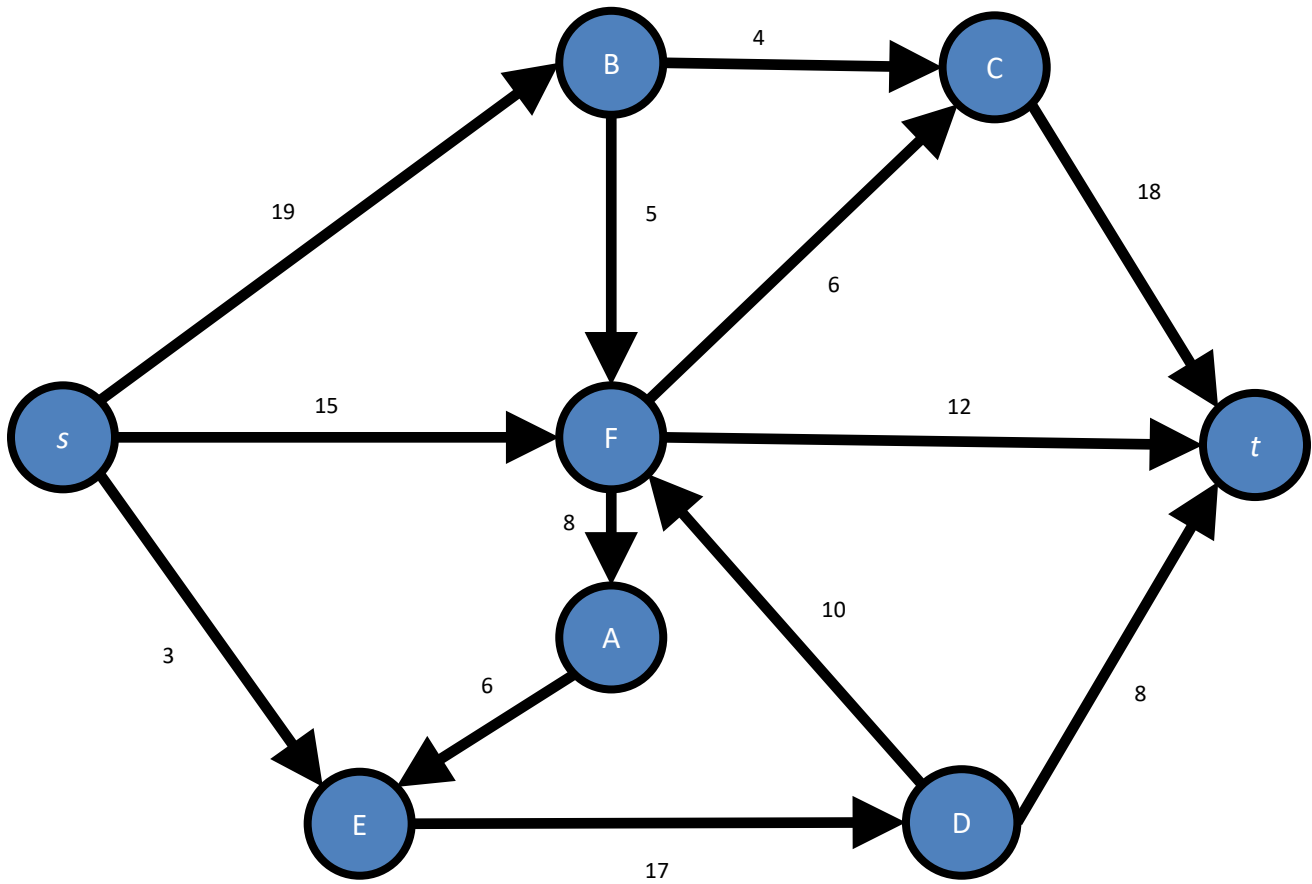
4. Consider the flow network from Problem 3. Which edges represent a minimum **st**-cut (separating **s** from **t**)? Note that the weight of the edges in the **st**-cut should be the same as the maximum flow you found.

5. Add the following numbers to a B-tree of order 4 and draw the resulting B-tree.

    112, 28, 42, 32, 33, 72, 91, 177, 86, 114, 48, 56, 105, 10, 95