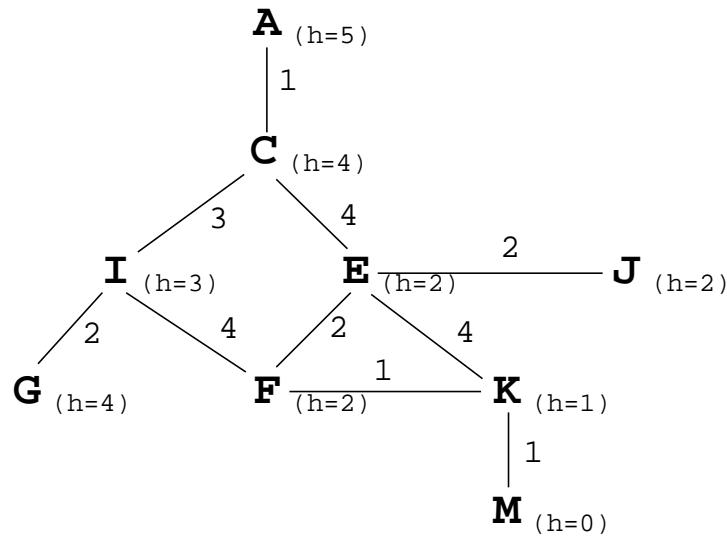


# CS4600 - Introduction to Intelligent Systems

## Homework 1 - Search - Solution



Consider the graph given above. It shows the actual distances between cities on a map. Each city is labelled with an estimate of the distance of the city from city M. Each path from a city to its neighbor is labelled with the length of the path. Consider an informed search for a shortest path from city A to city M using these estimates as heuristic function. Show how a version of A\* would find this path. Assume that A\* never expands the same state more than once and that it breaks ties toward cities with names earlier in the alphabet (A before B, B before C, and so on). Show the resulting search tree, including the f-value, g-value, and h-value of each node. Also clearly indicate the order in which the nodes are expanded (= label the node expanded first with 1, the node expanded next with 2, and so on - do not forget to label those nodes whose expansion only generates states that have already been expanded).

Search tree: (circled numbers indicate the order of expansion)

