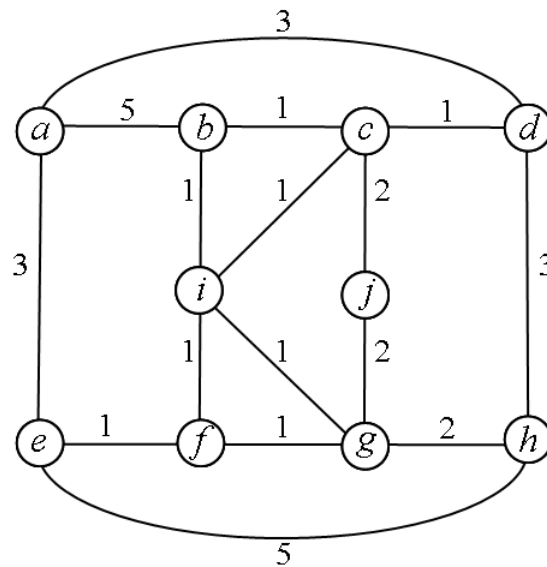


Question set for Chapter 11

All the questions in this question set concern the following graph G :



1. Prove that $\nu(G) < \tau(G)$, that is, prove that a minimum cover of this graph is strictly bigger than a maximum matching.
2. Write down for the graph G the output of Dijkstra's algorithm, using
 - (i) root vertex a ;
 - (ii) root vertex b .

You need not show the steps the algorithm takes but you should show the final output tree and give a table of distances from the root vertex.
3. If the labels on the edges of G are taken to be capacities, and each edge may be traversed in either direction, give a maximum flow from a to h in G . You need not show your working.
4. Find a perfect matching for the graph G and a matching which is maximal but not perfect. Find also a perfect matching of minimum total weight.
5. Run the Chinese Postman algorithm for the graph G . You need not show how the Recursive Euler Tour algorithm is used but you should show how the graph H is constructed and used to minimise your final tour of the graph.