

VE203 Discrete Mathematics

Spring 2022 — CCP9

January 18, 2022



9.1

Graph Terminology			
Type	Edges	Multiple Edges Allowed?	Loops Allowed?
Simple graph	Undirected	No	No
Multigraph			
Pseudograph			
Simple directed graph			
Directed multigraph			
Mixed graph			

9.2 Define the words:

1. K_n
2. C_n
3. bipartite graph
4. isolated vertex and pendant vertex
5. adjacency matrix and incidence matrix
6. walk and path
7. $K_{m,n}$

9.3 What does it mean for a graph to be connected?

9.4 What are the connected components of a graph?

9.5 A clique in a simple undirected graph is a complete subgraph that is not contained in any larger complete subgraph. Find all cliques in the graph shown.

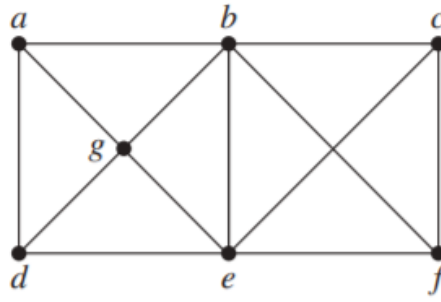


Figure 1: problem 9.5

9.6 What is maximal, maximum and perfect matching in a graph?

9.7 State Euler's Formula.

9.8 Prove or disprove:

Every graph with v vertices and e edges has at least $v - e$ connected components.