P-1 Consider a simple undirected graph with 5 nodes labeled A, B, C, D, and E, where the edges are AB, BC, CD, DE, and EA. What is the degree of node C?

ANSWER:2

P-2 A tree is a special type of graph that is connected and contains no cycles. If a graph has 10 nodes and is a tree, how many edges does it have?

ANSWER:9

R-14.12 Explain why the DFS traversal runs in $O(n^2)$ time on an n-vertex simple graph that is represented with the adjacency matrix structure.

ANSWER:1,DFS遍历了所有的点；2，在遍历每一个点的时候，再访问与它相邻的点

R-14.14 A simple undirected graph is complete if it contains an edge between every pair of distinct vertices. What does a depth-first search tree of a complete graph look like?

ANSWER：一条线，连接着所有的顶点，比如K4:A——B——C——D

R-14.16 Let G be an undirected graph whose vertices are the integers 1 through 8, and let the adjacent vertices of each vertex be given by the table below:

顶点 相邻顶点 1 2, 3, 4 2 1, 3, 4 3 1, 2, 4 4 1, 2, 3, 6 5 6, 7, 8 6 4, 5, 7 7 5, 6, 8 8 5, 7 Assume that, in a traversal of G, the adjacent vertices of a given vertex are returned in the same order as they are listed in the table above.

a. Give the sequence of vertices of G visited using a DFS traversal starting at vertex 1.
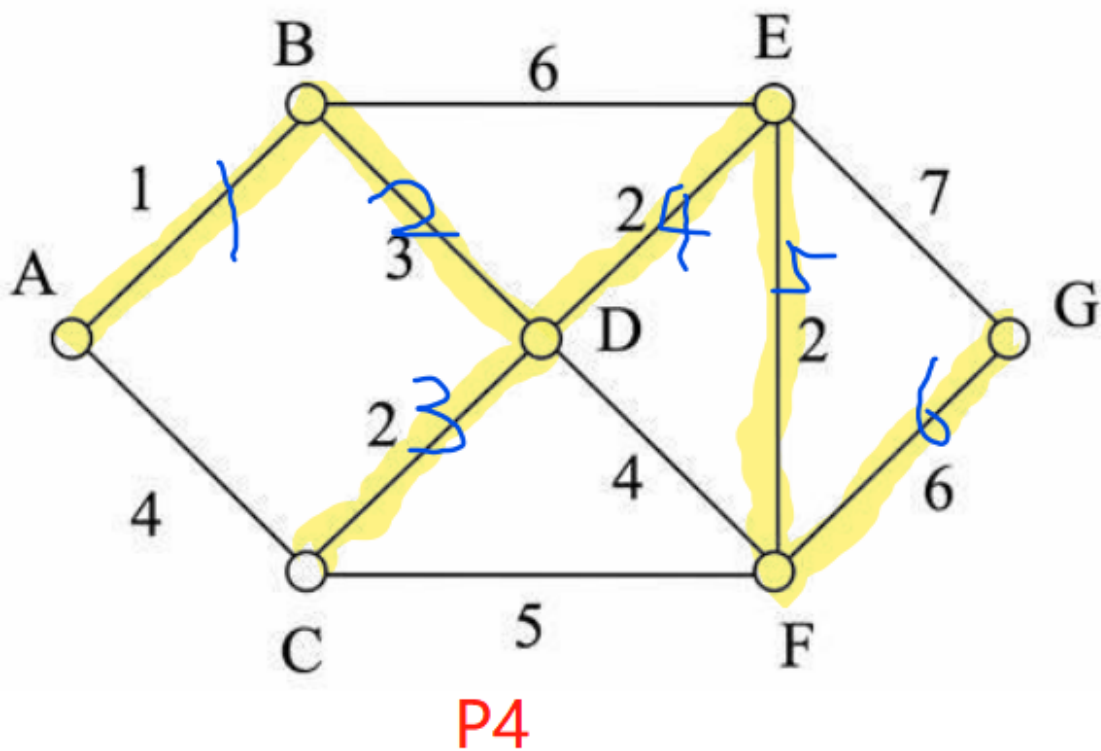
ANSWER：1——2——3——4——6——5——7——8

b. Give the sequence of vertices visited using a BFS traversal starting at vertex 1.

ANSWER：1,2,3,4,6,5,7,8

P4. Perform the Prim's algorithm on the following graph, starting with vertex A.

黄色为生成的树，蓝色的数字是绘制树的步骤

P4

P5. Perform the Kruskal's algorithm on the following graph.

黄色为生成的树，蓝色的数字是绘制树的步骤

P5