

Quiz-3 Sample Questions

1. Consider the undirected graph given by

$$\begin{bmatrix} 0 & 1 & 0 & 1 \\ 1 & 0 & 1 & 1 \\ 0 & 1 & 0 & 0 \\ 1 & 1 & 0 & 0 \end{bmatrix}$$

The completion order when running Breadth-First Search is:

- A. 3 2 1 0
 - B. 2 3 1 0
 - C. 0 1 2 3
 - D. 0 1 3 2
2. Suppose we use an adjacency-list and the Quick-Find version of Kruskal's algorithm. What is the running time of the main loop (lines 4-9 in the high-level pseudocode)?
- A. $O(n)$
 - B. $O(n^2)$
 - C. $O(n^3)$
 - D. None of the above
3. For a connected graph, which of the following statements is correct about Prim's algorithm?
- A. For a graph with edges whose weights are distinct, Prim's algorithm may produce different MSTs depending on the starting node.
 - B. At each step, Prim's algorithm selects the smallest edge in the entire graph.
 - C. At any step, the set of selected edges always forms a single connected tree.
 - D. Prim's algorithm can only be applied to directed graphs.