Your grade: 100%

Your latest: **100%** • Your highest: **100%** • To pass you need at least 70%. We keep your highest score.

Next item →

1. **A graph representing tweets would have only "one type" (e.g. label) of node.** 1 / 1 point

- ○ True
- ◉ False

Correct

2. In a network representing the world wide web **nodes** would likely represent: 1 / 1 point

- ○ Hyperlinks
- ◉ Webpages
- ○ Google search terms
- ○ Individual computers

Correct
This is the content we would want to document relations between.

3. In a network representing the world wide web **edges** (or links) would likely represent 1 / 1 point

- ◉ Hyperlinks
- ○ Webpages
- ○ Google search terms
- ○ Individual computers

Correct
Since one webpage links to another using hyperlinks, these edges (or links) would likely be represented by edges between nodes.

4. In an email network, which might reasonably be represented by weight on edges? 1 / 1 point

- ○ the total number of people who sent an email in a week
- ◉ average number of emails sent from one user to another in a week
- ○ the total number of emails sent by one user in a week

Correct

5. A loop in a graph is where: 1 / 1 point

- ○ when there is a edge from A->B, there is also an edge from B->A.
- ○ where there is a path in some way from a node, through 1 or more other nodes, back to the original node.
- ◉ where there is an edge from a node to itself.

Correct

6. An example of a loop in a graph could occur when: 1 / 1 point

- ◉ Someone emails themself
- ○ Someone emails a friend who replies
- ○ Someone emails a friend, who emails another friend, who then replies to you

Correct

7. When trying to represent a relationship between Maria and Julio who have more than one relationship to each other (e.g., tennis partner, co-worker, emergency contact) which of the following would be needed in a graph representing those relationships 1 / 1 point

- ○ Multiple nodes for each of Maria and Julio, to capture the various relationships
- ○ Separate graphs for each kind of relationship
- ◉ Multiple edges between Maria and Julio

Correct

8. In many applications paths **(where we go from one node to another without repeating nodes) are more useful than walks (where we can repeat a node when going from one node to another).** 1 / 1 point

- ◉ True
- ○ False

Correct

9. Trails (paths without repeated **edges**) can be interesting in which of the following problem applications? 1 / 1 point

- ○ An email network tracing email replies.
- ◉ Routing to avoid using the same bridge or road.
- ○ Routing to avoid visiting the same city.
- ○ An email network tracing frequency of emails from one person to another.

Correct

10. Suppose we have an email network where the edges of a graph represent the number of emails from one user to another. 1 / 1 point

If I was going to ask if Maria had sent any emails that (either directly or through forwarding from others) reached Julio, I would ask if:

- ◉ Julio's node was reachable from Maria node
- ○ Maria's node was reachable from Julio's node

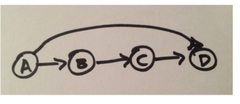
Correct

11. If I want to find the diameter of a graph, I should start by finding the shortest path between each set of nodes. 1 / 1 point

- ◉ True
- ○ False

Correct

12. What is the diameter of this graph? 1 / 1 point



- ○ 1
- ◉ 2
- ○ 3

Correct

13. This question is about "best paths". To find the most discussed email in an email network, would we be looking to minimize a function or maximize a function? 1 / 1 point

- ◉ Maximize
- ○ Minimize

Correct
The "optimization function" we would want is to maximize the length of a reply path based off the sending of one email.

14. Which are the two kinds of constraints on paths discussed in the video on basic path analytics? (check 2) Hint: remember the example of Amarnath needing to get to work by taking his son to school. 1 / 1 point

- ☑ Exclusion of nodes and/or edges

Correct
For example, if one will not use toll-roads. See this video to review. *(The Basic Path Analytics Problem)*

- ☐ Directionality
- ☑ Inclusion of nodes and/or edges

Correct
For example, if one must stop by a given location on your route to someplace else. See this video to review. *(The Basic Path Analytics Problem)*

15. What are examples of **preference** constraints in the Google Maps application? 1 / 1 point

- ☑ Avoid roads under construction

Correct

- ☑ Avoid highways

Correct

- ☐ Include son's school

16. Which of the statements below is true? 1 / 1 point

- ◉ Dijsktra's algorithm is computationally inefficient (has high computational complexity).
- ○ Dijsktra's algorithm is computationally efficient (has low computational complexity).

Correct

17. In the video on "Inclusion and Exclusion Constraints" we learn that adding constraints can actually make our analysis job easier. For example, when we require that a given node be included on a path, which of the following impacts now make the analysis job easier? (Choose 2) 1 / 1 point

- ☑ Reduction of the size of the graph

Correct
There may be only parts of the complete graph that are relevant, given constraints.

- ☑ Splitting the task into 2 independent shortest path problems

Correct
And these can be solved in parallel -- at the same time.

- ☐ Changing the weights on the edges of the graph and/or subgraphs