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Module 1 Quiz

Review Key Concepts

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Module 1 Quiz

Review Key Concepts

1. Select all the true statements below.

1 point

- ☐ Connections between a set of items in the network are called vertices.
- ☒ Weighted networks are used to describe networks with unequal relationships between nodes.
- ☐ An undirected graph is a good choice to present a network with asymmetric relationships between nodes.
- ☒ When there are only two opposite relationships between nodes, a signed network is a good representation.

2. A network that has parallel edges (a pair of nodes with different types of concurrent relationships) is called a ____.

1 point

- ☐ Directed Network
- ☐ Weighted Network
- ☐ Signed Network
- ☒ Multigraph

3. Suppose we want to plot a network representing a social feed with the students in a biology class. In order to give them a better understanding of the network, we want to show who is the professor and who is the prey. For these purposes, we have multiple options for how we can want to represent the professor's preference for which prey is their most or second most. Choose the most appropriate type of network.

1 point

- ☐ Undirected Network
- ☐ Directed Signed Network
- ☒ Directed Weighted Network
- ☐ Unweighted Network
- ☐ Signed Network

4. Select all true statements:

1 point

- ☒ Edges can carry many labels or attributes.
- ☐ Suppose G is a graph and nodes A , B are two of its nodes. $G.edges[A][B]$ and $G.nodes[B][A]$ will return the same value for all types of networks.
- ☒ Accessing nodes or edge attributes in NetworkX is the same as accessing values in a Python dictionary.
- ☒ Suppose we have created a Gx in GraphTools (G) with some nodes and edges. The statement $Gx.nodes[0].label$ will return a list of labels.

5. Based on the following lines of code, what is the type of $G.edges[A][B]$?

1 point

```
1 import networkx as nx
2 G=nx.MultiGraph()
3 A=nx.Node(1)
4 B=nx.Node(2)
5 G.add_weighted_edges_from([(A,B,1), (A,B,2), (A,B,3), (A,B,4), (A,B,5)])
6 G.edges[A][B]
```

- ☒ Dictionary
- ☐ list
- ☐ string

6. Based on the following lines of code, what's the correct statement to access the edge attribute "weight"?

1 point

```
1 import networkx as nx
2 G=nx.MultiGraph()
3 A=nx.Node(1)
4 B=nx.Node(2)
5 G.add_weighted_edges_from([(A,B,1), (A,B,2), (A,B,3), (A,B,4), (A,B,5)])
6 G.edges[A][B]
```

- ☐ $G.edges[A][B].weight$
- ☒ $G.edges[A][B]['weight']$
- ☐ $G.edges[A][B].get('weight')$
- ☐ $G.edges[A][B].weight[0]$
- ☐ $G.edges[A][B].weight[1]$

7. After all lines of code below are executed, what object (the class) of node A?

1 point

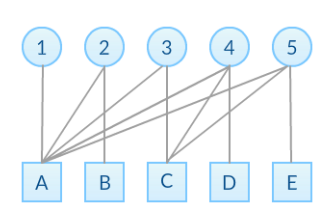
```
1 import networkx as nx
2 G=nx.MultiGraph()
3 A=nx.Node(1)
4 B=nx.Node(2)
5 G.add_weighted_edges_from([(A,B,1), (A,B,2), (A,B,3), (A,B,4), (A,B,5)])
6 G.edges[A][B]
```

Check all that apply:

- ☒ Manager
- ☒ Friend
- ☒ Business Partner
- ☒ Customer
- ☐ Nearest Neighbor
- ☐ Neighbor

8. Based on the bipartite network below, select all the edges you can add to the network while maintaining its bipartite structure.

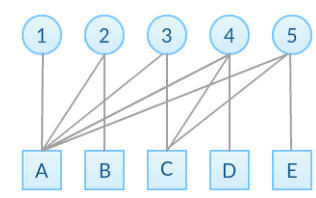
1 point



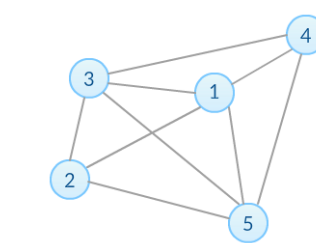
- ☒ (1, B)
- ☒ (1, D)
- ☐ (B, D)
- ☐ (2, 4)

9. Based on the bipartite network below, which of the following is the bipartite projection of the graph onto the set of nodes nodes?

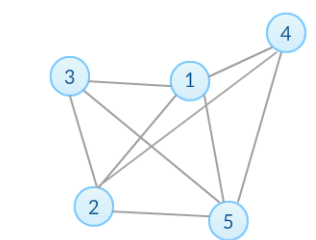
1 point



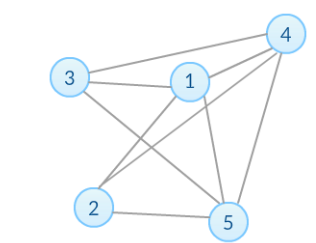
☐ A



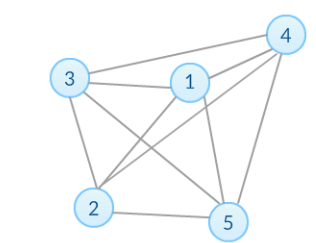
☐ B



☐ C

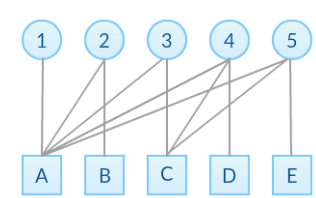


☒ D



10.

1 point



Based on the bipartite network, suppose you create a weighted bipartite projection of the graph onto the set of bipartite nodes.

What is the weight of edge AC in the projection graph?

- ☐ 1
- ☐ 2
- ☒ 3
- ☐ 4
- ☐ 5

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