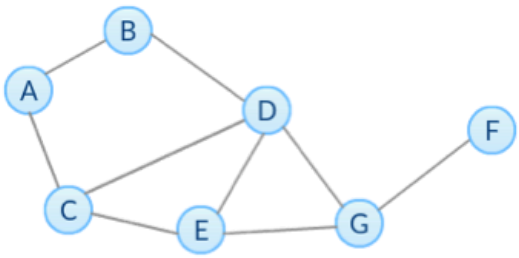
Module 3 Quiz

Quiz, 10 questions

1 point

1.

Based on the network below, what is the degree centrality of node D?

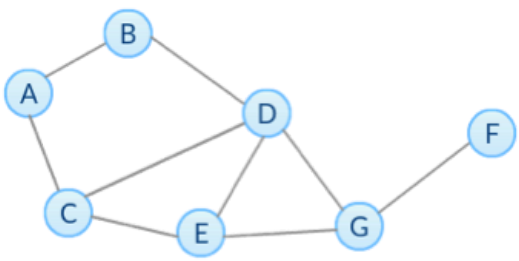


- 0.42
- 0.57
- 0.50
- ~~0.67~~

1 point

2.

Based on the network below, what is the closeness centrality of node G?



- 0.875
- ~~0.6~~

0.75

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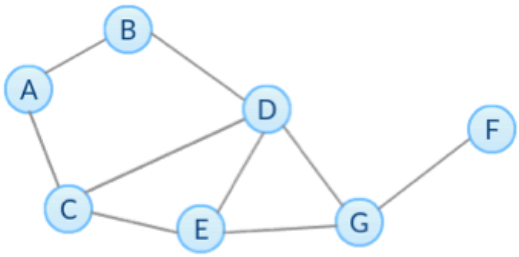
0.7

1 point

3.

Based on the network below, what is the normalized betweenness centrality (excluding endpoints) of node G?

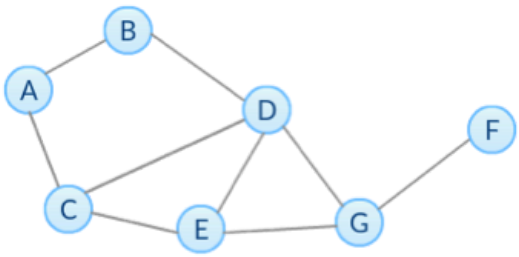


- 0.67
- 0.47
- 0.24
- ~~0.33~~

1 point

4.

Based on the network below, what is the betweenness centrality without normalization of edge (G,F)?



- 4
- 5
- ~~6~~
- 7

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1 point

5.
Select all True statements.

- [ ] In directed networks, in-degree and out-degree centrality of a node are always the same.
- [ ] ~~The closeness centrality of a node describes how far the node is from others.~~
- [ ] ~~We can use subsets of node-pairs to approximate betweenness centrality.~~
- [ ] ~~The assumption of degree centrality is that important nodes have more connections.~~
- [ ] The node with highest betwenness centrality in a network also has the highest closeness centrality.

1 point

6.
Select all True statements about Page Rank (PR) and HITS in directed networks.

- [ ] The authority and hub score of each node is obtained by computing multiple iterations of HITS algorithm and both scores of most networks are convergent.
- [ ] Nodes that have outgoing edges to good hubs are good authorities, and nodes that have incoming edges from good authorities are good hubs.
- [ ] Adding out-links of a node will always decrease its PR.
- [ ] Adding in-links of a node will never decrease its PR.
- [ ] Nodes with high in-degree centrality have higher PRs than nodes with low in-degree centrality.

1 point

7.
Given the network below, which value of alpha (damping parameter) listed below in the NetworkX function pagerank maximizes the PageRank of node D?

- ( ) ~~0.95~~
- ( ) 0.5
- ( ) 0.9
- ( ) 0.8

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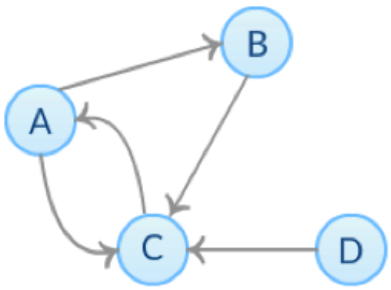
1 point

8.

Based on the network below, what is the basic PR of node C at step k = 1?

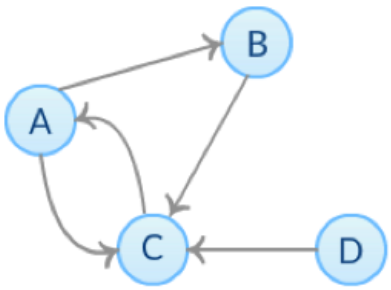


- ~~0.625~~
- 0.5
- 0.25
- 0.375
- 0.125

1 point

9.

Based on the network below, what are the corresponding normalized authority and hub scores of node C correspondingly after two iterations of HITS algorithm?



- 0.4, 0.4
- ~~0.57, 0.09~~
- 0.33; 0.33
- 0.8, 0.2

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1 point

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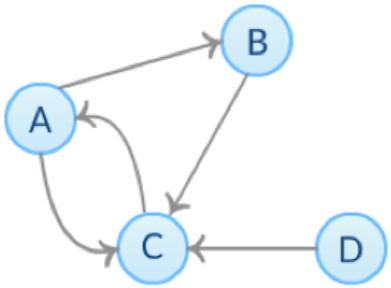
10.

Based on the network below, which of the following is NOT True? Check all that apply.



- [ ] At each step, the sum of all nodes' basic PR is always 1.
- [ ] Node D's authority and hub score after k iterations (k>=1) are always 0.
- [ ] Node D's basic PR at step k (k>=1) is always 0.
- [ ] At step k (k>=1), node A's basic PR is always the same as node C's basic PR at step k-1.

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