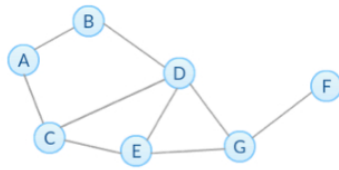# Module 3 Quiz

TOTAL POINTS 10

1. Based on the network below, what is the degree centrality of node D?　　　　　　　1 point
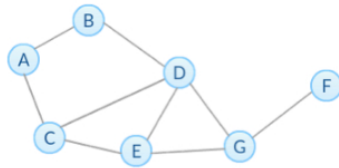

- ○ 0.57
- ○ 0.50
- ○ 0.42
- ◉ 0.67

2. Based on the network below, what is the closeness centrality of node G?　　　　　　1 point
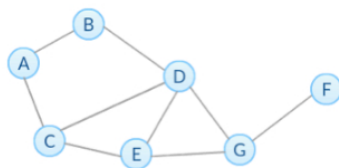

- ○ 0.75
- ○ 0.7
- ○ 0.875
- ◉ 0.6

3. Based on the network below, what is the normalized betweenness centrality (excluding endpoints) of node G?　　　　1 point
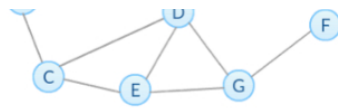

- ○ 0.24
- ○ 0.67
- ○ 0.47
- ◉ 0.33

4. Based on the network below, what is the betweenness centrality without normalization of edge (G,F)?　　　　1 point

- ○ 4
- ○ 5
- ● 6
- ○ 7

---

5. Select all True statements. `1 point`

- ☑ 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.
- ☐ 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.

---

6. Select all True statements about Page Rank (PR) and HITS in directed networks. `1 point`

- ☑ Adding out-links of a node will always decrease its PR.
- ☐ Nodes that have outgoing edges to good hubs are good authorities, and nodes that have incoming edges from good authorities are good hubs.
- ☐ Nodes with high in-degree centrality have higher PRs than nodes with low in-degree centrality.
- ☐ Adding in-links of a node will never decrease its PR.
- ☑ 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.

---

7. Given the network below, which value of alpha (damping parameter) listed below in the NetworkX function pagerank maximizes the PageRank of node D? `1 point`
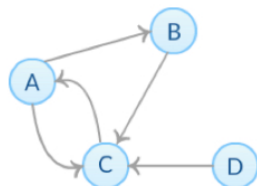

- ○ 0.8
- ● 0.95
- ○ 0.5
- ○ 0.9

---

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

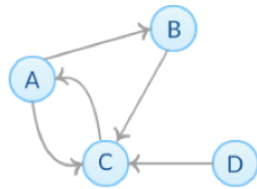- ○ 0.25
- ● 0.625
- ○ 0.375

○ 0.375

○ 0.5

○ 0.125

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?
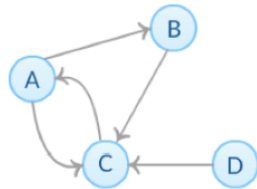
1 point

○ 0.8, 0.2

○ 0.33, 0.33

○ 0.4, 0.4

◉ 0.57, 0.09

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

1 point

☑ 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 each step, the sum of all nodes' basic PR is always 1.

☐ At step k (k>=1), node A's basic PR is always the same as node C's basic PR at step k-1.

☐ I, **Piyush Sambhi**, understand that submitting work that isn't my own may result in permanent failure of this course or deactivation of my Coursera account.
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