Week 9 Quiz [Fall 2019]

Due Oct 25 at 11:59pm **Points** 19 **Questions** 19
Available Oct 19 at 12am - Oct 25 at 11:59pm 7 days **Time Limit** None

Instructions

Submission Guidelines

This assignment has multiple-choice and numeric response questions. Only one submission is allowed, however as long as the quiz is not submitted, it is automatically saved and can be resumed.

Upon submission, make sure you have a record of the submission (with timestamp) on the assignment/quiz page on Canvas. If we do not have your submission in Canvas, you will **not** receive credit.

It is essential to follow these instructions to provide answers for this assignment. **Students who do not follow these guidelines will lose points.**

Attempt History

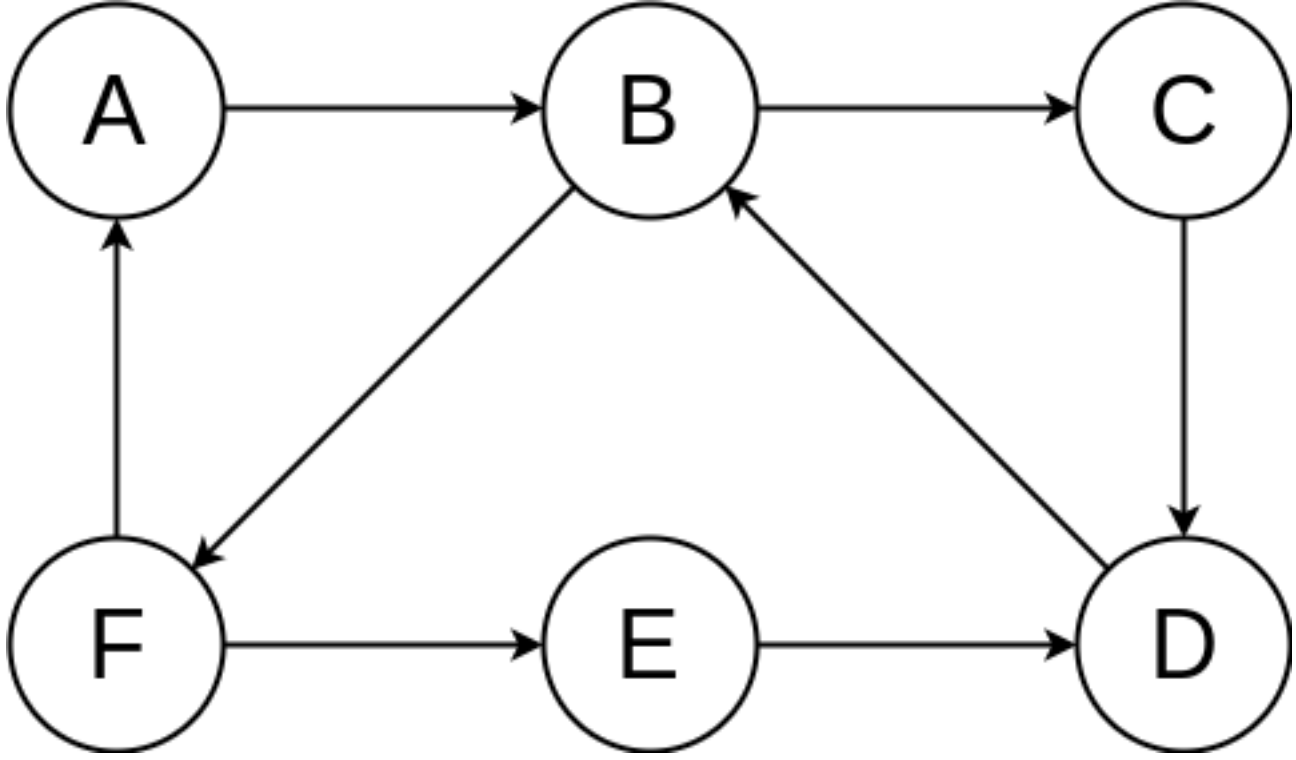
	Attempt	Time	Score
LATEST	Attempt 1	1,443 minutes	14.5 out of 19

Score for this quiz: **14.5** out of 19
Submitted Oct 25 at 6:38pm
This attempt took 1,443 minutes.

Question 1

1 / 1 pts

Consider the following graph:



Which of the following **best** describes its connectivity?

Correct!

- (•) Strongly connected
- ( ) Weakly connected
- ( ) Connected
- ( ) Unconnected

Question 2

1 / 1 pts

If a graph is not connected, then the diameter and average path length (APL) are undefined because there is no path between nodes in different components.

Consider the previous graph. What is this graph's diameter? Enter 0 if the diameter is undefined.

Correct!

4

orrect Answers

4 (with precision: 1)

Question 3

1 / 1 pts

Consider an undirected version of the previous graph. What is the diameter of this graph?

Correct!

2

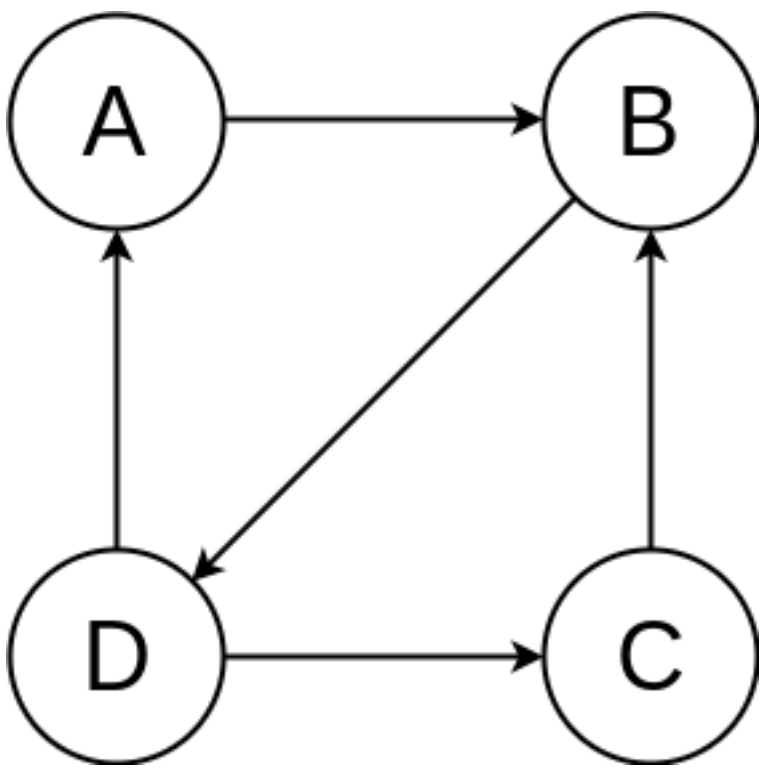
orrect Answers

2 (with precision: 1)

Question 4

0 / 1 pts

Consider the following graph:



What is the average shortest path length (APL)? Answer to two places past the decimal.

ou Answered

5.25

orrect Answers

1.75 (with precision: 3)

Question 5

1 / 1 pts

Consider any arbitrary directed graph D along with its undirected version G.

True or False: If the average shortest path length (APL) and diameter of a directed graph exist, each must be greater than or equal to those of the undirected version.

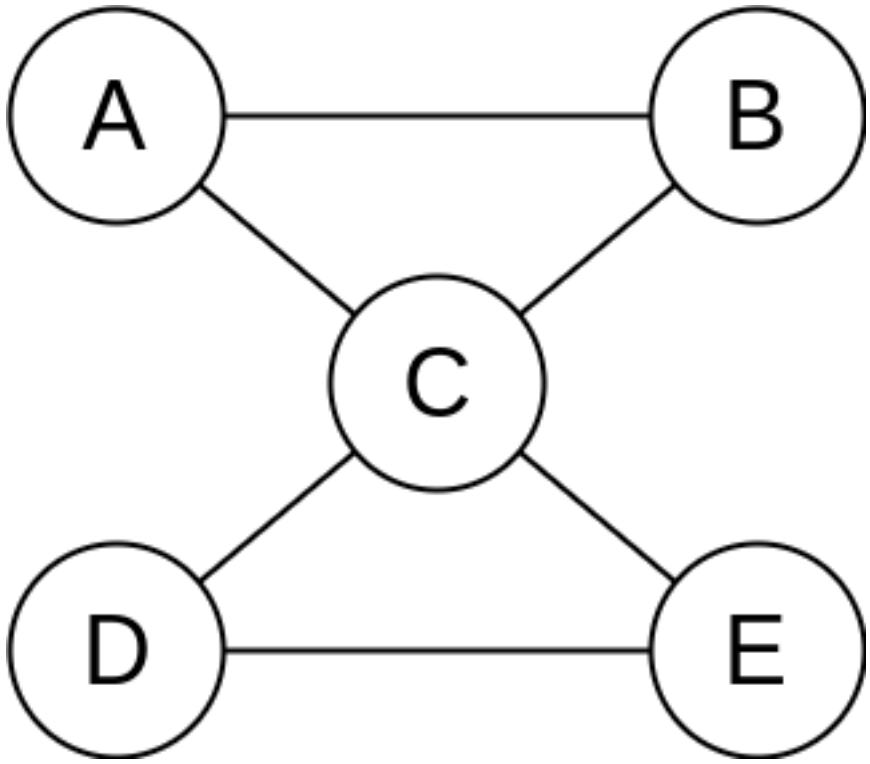
Correct!

- (•) True
- ( ) False

Question 6

0 / 1 pts

Consider the following graph:



What is the clustering coefficient of node C?

orrect Answer

- ( ) 1/3

You Answered

- (•) 1/6

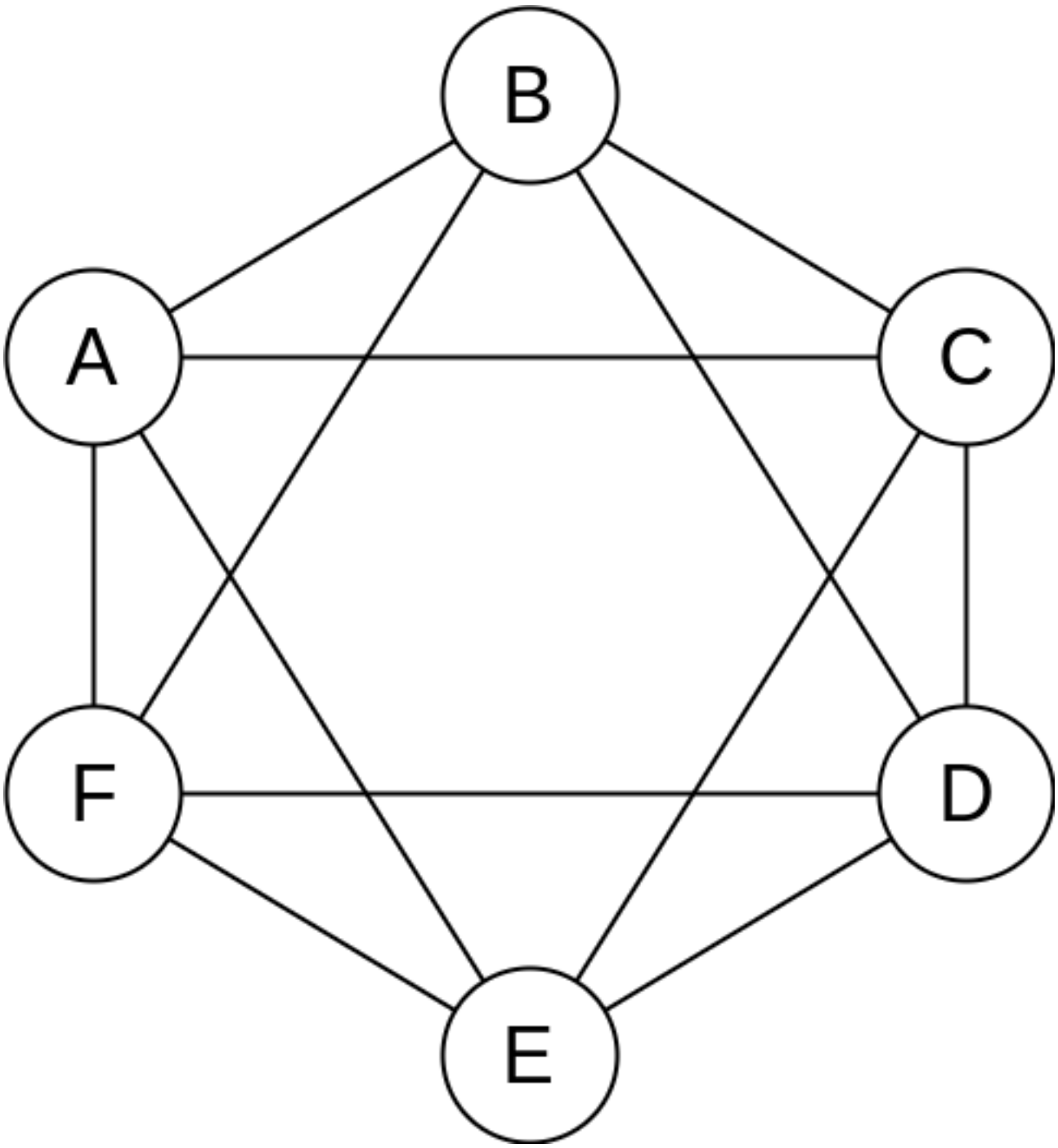
- ( ) 0

2/3

Question 7

0 / 1 pts

Consider the following graph:



What is this graph's clustering coefficient?

orrect Answer

2/3

1/6

ou Answered

1/3

1/2

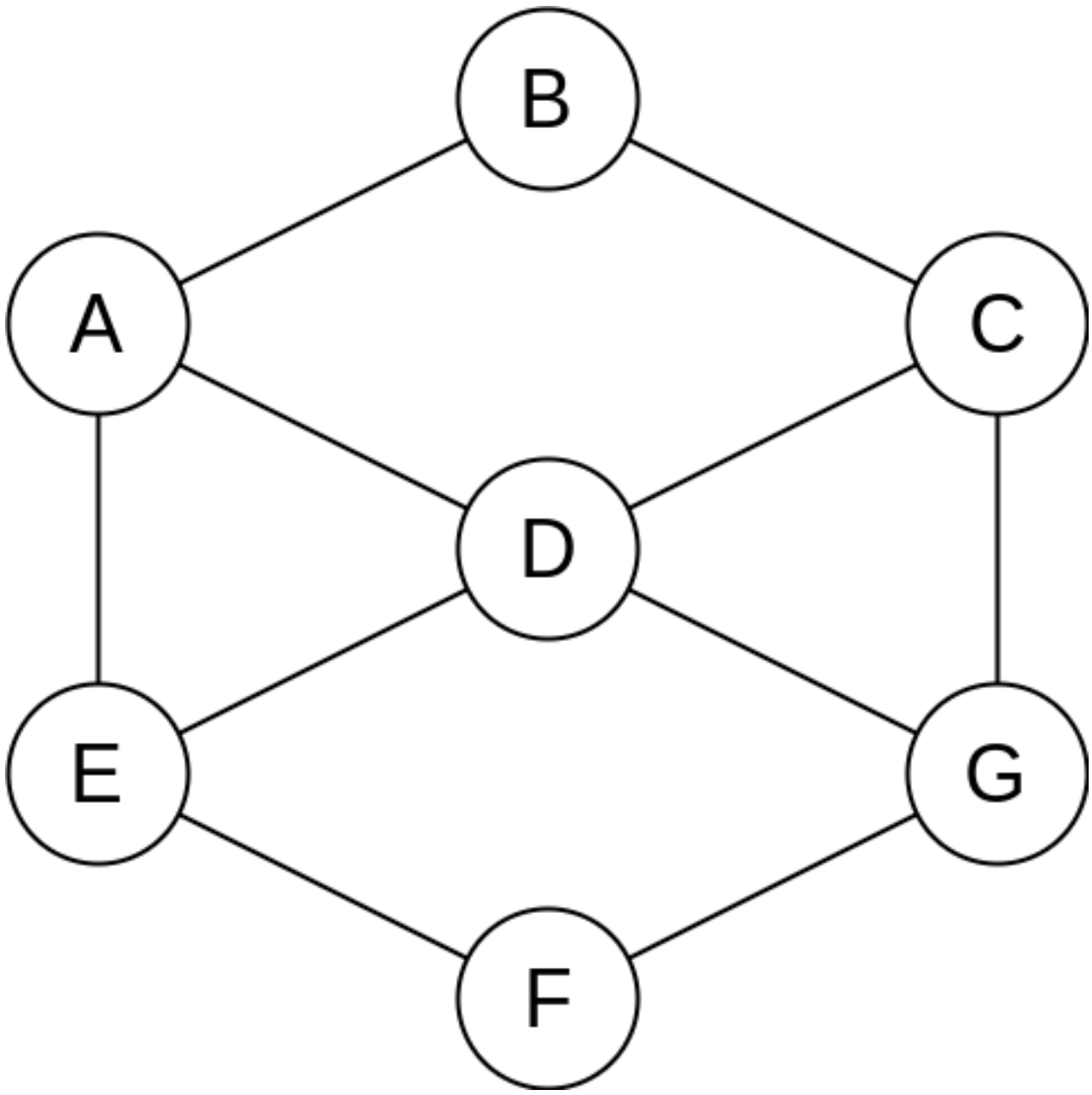
5/6

1

Question 8

0 / 1 pts

Consider the following graph:



What is this graph's clustering coefficient? Answer to two places past the decimal.

ou Answered

0.12

orrect Answers

Between 0.23 and 0.24

0 (with margin: 0)
0 (with margin: 0)
0 (with margin: 0)

Question 9

1 / 1 pts

What is the maximum possible clustering coefficient for a node in a tree?

Correct!

- (•) 0
- ( ) 0.1
- ( ) 0.5
- ( ) 1

Question 10

1 / 1 pts

What is the average degree in an undirected network with 100 nodes and 200 edges?

Hint: it's not 2.

Correct!

4

orrect Answers

4 (with precision: 1)
0 (with margin: 0)
0 (with margin: 0)
0 (with margin: 0)

Question 11

1 / 1 pts

An academic collaboration network is one type of social network. In such a network, a node with degree two means that:

Correct!

- (•) A scholar has co-authored publications with two other scholars
- ( ) A scholar has authored two publications
- ( ) A publication was co-authored by two scholars
- ( ) A scholar has co-authored a paper with one other scholar

Question 12

1 / 1 pts

Real networks are homogeneous - that is, no nodes or edges are more important than others

- ( ) True

Correct!

- (•) False

Question 13

1 / 1 pts

Which term refers to the measure of the importance of a node in a network

Correct!

- (•) Centrality
- ( ) Weight
- ( ) Milgram's Number

Clustering coefficient

Question 14

1 / 1 pts

In a social network, which of the following would one expect to be true about the degrees of its nodes?

Correct!

- A variety of degrees is to be found
- Most nodes connect to a single, large hub
- All nodes have more or less the same degree
- All nodes have very high degree

Question 15

1 / 1 pts

What does the Degree of a node measure?

Correct!

- The number of neighbors of that node
- The length of the path between the node and the most highly connected node in the network
- The number of neighbors of that node which have no other neighbors
- The number of paths from that node to any other given node

Question 16

1 / 1 pts

A node which has many more neighbors compared to the average node in its network is known as a

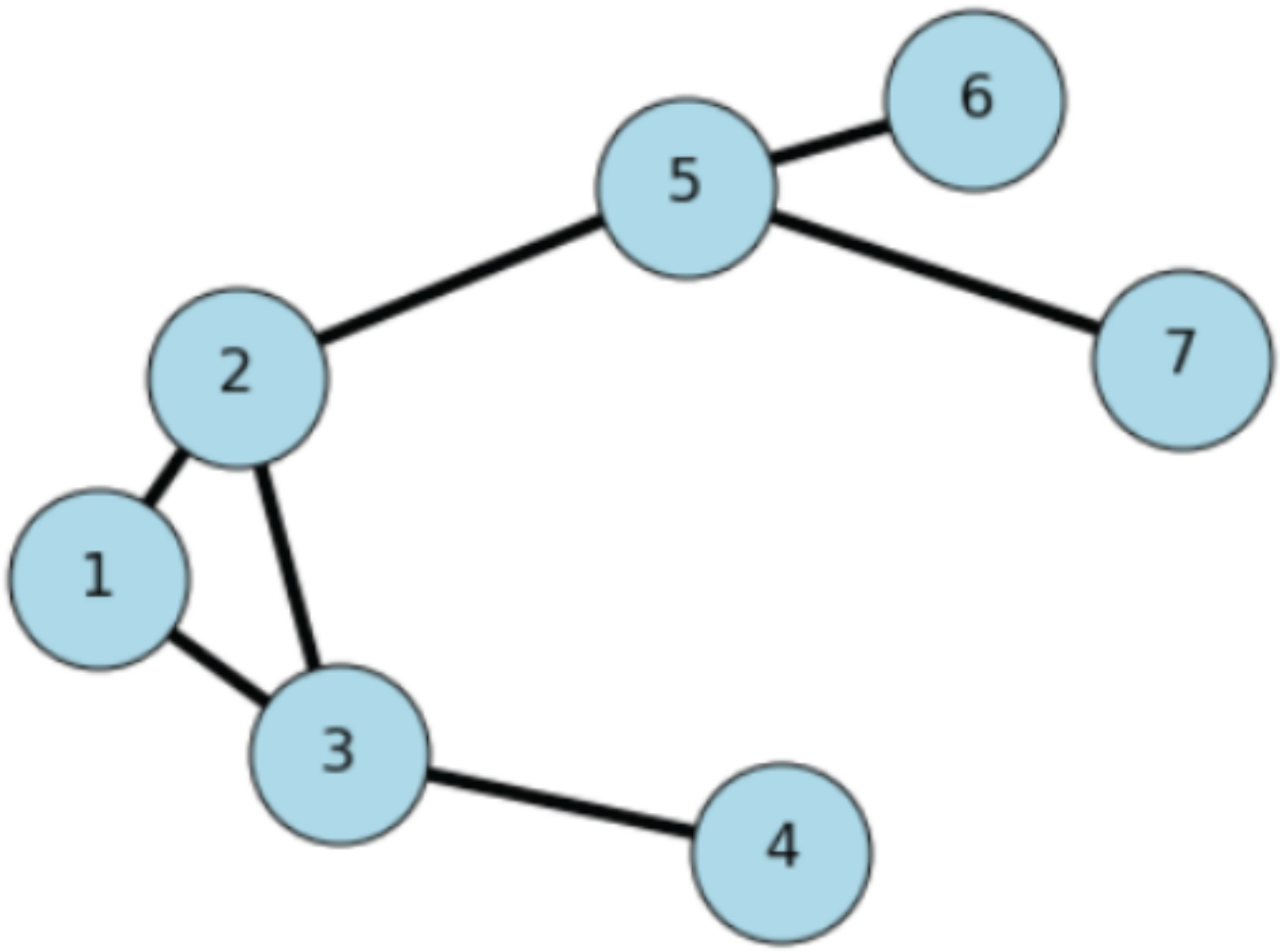
Correct!

- (•) Hub
- ( ) Kingpin
- ( ) Kevin Bacon
- ( ) Influencer
- ( ) Centrality

Question 17

1 / 1 pts

Consider the following graph:



Which node has the highest degree centrality?

In case of a tie, answer with all the tied top nodes.

Correct!

- [x] 2

Correct!

- [x] 3

Correct!

- [x] 5
- [ ] 1
- [ ] 4
- [ ] 6
- [ ] 7

Question 18

0.5 / 1 pts

Consider the previous graph:

Which node has the highest betweenness centrality?

In case of a tie, answer with all the tied top nodes.

orrect Answer

- [ ] 2

Correct!

- [x] 5
- [ ] 1
- [ ] 3
- [ ] 4
- [ ] 6
- [ ] 7

Question 19

1 / 1 pts

Again consider the previous graph:

Which node has the highest closeness centrality?

In case of a tie, answer with all the tied top nodes.

Correct!

- [x] 2
- [ ] 1
- [ ] 3
- [ ] 4
- [ ] 5
- [ ] 6
- [ ] 7

Quiz Score: **14.5** out of 19