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Courses » Computational Systems Biology

Announcements **Course** Ask a Question Progress Mentor FAQ

Unit 6 - Week 2

Course outline

How to access the portal

Pre-requisite Assignment

MATLAB Access and Introduction

MATLAB Learning Modules

Week 1

Week 2

- 13 - Introduction to Networks
- 14 - Introduction to Networks
- 15 - Introduction to Network Biology
- 16 - Introduction to Network Biology
- 17 - Introduction to Network Biology

Assignment 2

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment. **Due on 2018-08-15, 23:59 IST.**

1) The correct order of clustering coefficient $C_{small\text{-}world}$, C_{rand}, $C_{scale\text{-}free}$ and characteristic path length $L_{small\text{-}world}$, L_{rand}, $L_{scale\text{-}free}$ are: ***1 point***

- $C_{small\text{-}world} > C_{rand} > C_{scale\text{-}free}$; $L_{small\text{-}world} \sim L_{rand} < L_{scale\text{-}free}$
- $C_{small\text{-}world} > C_{rand} = C_{scale\text{-}free}$; $L_{small\text{-}world} < L_{rand} < L_{scale\text{-}free}$
- $C_{small\text{-}world} < C_{rand} < C_{scale\text{-}free}$; $L_{small\text{-}world} > L_{rand} < L_{scale\text{-}free}$
- $C_{small\text{-}world} = C_{rand} < C_{scale\text{-}free}$; $L_{small\text{-}world} > L_{rand} > L_{scale\text{-}free}$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$C_{small\text{-}world} > C_{rand} > C_{scale\text{-}free}$; $L_{small\text{-}world} \sim L_{rand} < L_{scale\text{-}free}$

2) Betweenness centrality is a characteristic of a __ and is a measure of __ ***1 point***

- node, how connected the neighbours are
- network, number of shortest paths passing through a node
- node, number of connection each node has
- network, fraction of edges between nodes of different types

No, the answer is incorrect.
Score: 0

Accepted Answers:
network, number of shortest paths passing through a node

3) Which of the following statements are true for the clustering coefficient of a network: ***1 point***

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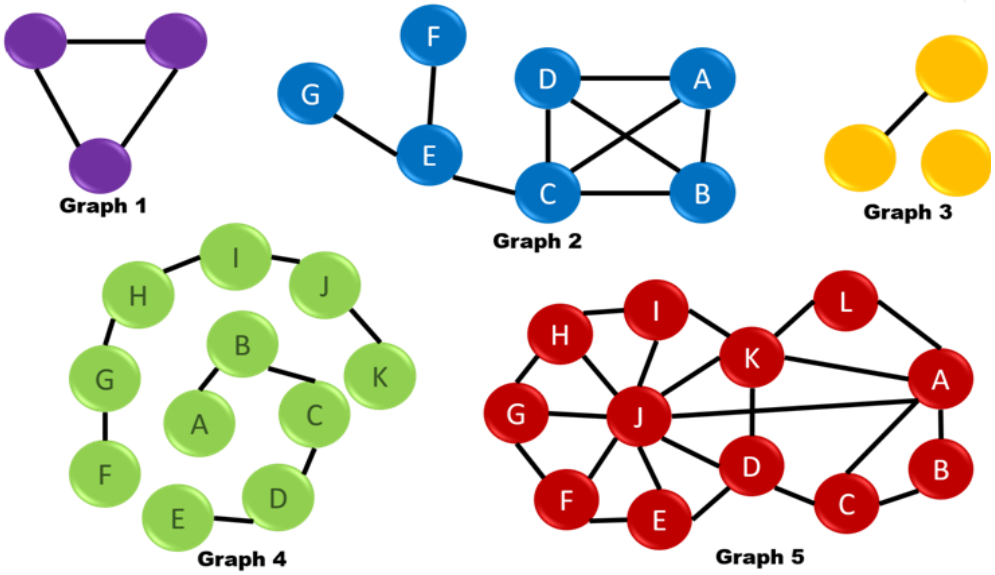
No, the answer is incorrect.
Score: 0

Accepted Answers:
Clustering coefficient of a node in a graph can be zero
Clustering coefficient of 1 shows the graph is complete

Based on the data,Answer from Question 4-7

Consider the following graphs and answer the following questions:

4) ***1 point***



Which graph has the largest connected component?

- Graph 1
- Graph 2
- Graph 3
- Graph 4
- Graph 5

No, the answer is incorrect.
Score: 0

Accepted Answers:
Graph 5

5) What is the diameter, and characteristic path length of graph 1?

(Separate answer with comma, no spaces)

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: String) 1,1

1 point

6) Among the given graphs, how many nodes does the largest clique contain?

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 4

1 point

7) What is the clustering coefficient of node C in graph 4?

No, the answer is incorrect.
Score: 0

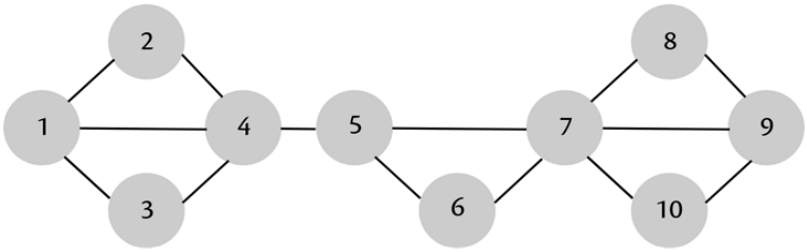
Accepted Answers:
(Type: Numeric) 0

1 point

Based on data, Answer from Question 8-11

Consider the graph $G(10,14)$ shown below. Calculate the following parameters (Decimal up to 2 places):

8)



Degree of Node 4

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 4
(Type: Numeric) 4.00

1 point

9) Betweenness centrality of Node 5

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 0.5,0.6

1 point

10) Clustering coefficient of Node 7

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 0.25,0.35

1 point

11) Number of connected components

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 1
(Type: Numeric) 1.00

1 point

12) The density of a directed graph with 100 nodes and 900 edges is _____

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 0.09,0.091

1 point

13) What can be the maximum number of connected components of an undirected graph with 8 vertices and 6 edges considering that every node has at most three edges?

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 5

1 point

14) The network density and diameter of a complete undirected graph of 6 nodes is ___and ___

(Separate answer with comma, no spaces)

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: String) 1,1

1 point

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