Home
Syllabus
Schedule
Announcements
Resources
Assignments
Tests & Quizzes
Gradebook
Drop Box
Chat Room
Site Info
Roster
Help

CSC 106: 201409 A01: Tests & Quizzes

Assignment 5

Part 1 of 1 - 20.0/ 20.0 Points

Question 1 of 10 2.0/ 2.0 Points

You are tasked with creating a database for a philosophy professor. The professor wants to keep track of different philosophers from the Western School of Philosophy (check out this web page for an overview of this school of thought and its accompanying eras : Western School of Philosophy).

The professor wants to hold information on each philosopher, including name, date of birth, country of origin, brief biographical overview. Moreover, the professor wants a complete list of all works completed by a philosopher, including title of the work, medium (e.g. poem, prose, mathematical formula, map, painting, etc.), date the work was produced, and a short precis describing the work. As well, the professor wants to describe the era that each philosopher practiced in, including name of the era, brief description of the era, and dates for the beginning and end of the era.

You interview the professor and acertain the following rules:

1). Each era will contain one or more philosophers.

2). Each philosopher will have completed one or more works.

How many entities do you think the database will have and what will the relationships be between them? Select the answer that will not have any {attributes} (attributes with multiple values).

✔ A. The database will have three entities: **Eras**, **Philosophers**, and **Works**. The relationships will be one to many from **Eras** to **Philosophers**, and one to many from **Philosophers** to **Works**.

B. The database will have three entities: **Eras**, **Philosophers**, and **Works**. The relationships will be one to many from **Philosophers** to **Eras**, and one to many from **Works** to table **Philosophers**.

C. The database will have two entities:**Philosophers and Eras** and **Works**. The relationships will be one to many from **Philosophers and Eras** to **Works.**

D. The database will have two entities:**Eras** and **Philosophers and Works**. The relationships will be one to many from **Eras** to **Philosopher and Works.**

Answer Key: A

Feedback: Well done!

Question 2 of 10 2.0/ 2.0 Points

You have created a database for a philosophy professor. The professor wants to keep track of different philosophers from the Western School of Philosophy (check out this web page for an overview of this school of thought and its accompanying eras : Western School of Philosophy).

The professor wants to hold information on each philosopher, including name, date of birth, country of origin, brief biographical overview. Moreover, the professor wants a complete list of all works completed by a philosopher, including title of the work, medium (e.g. poem, prose, mathematical formula, map, painting, etc.), date the work was produced, and a short precis describing the work. As well, the professor wants to describe the era that each philosopher practiced in, including name of the era, brief description of the era, and dates for the beginning and end of the era.

The database enables the following rules

1). Each era will contain one or more philosophers.

2). Each philosopher will have completed one or more works.

You have decided upon the entities in this database, now you are fitting attributes (also know as "fields") into each entity. Which of the following attributes would correct go with a given entity? We are looking for an arrangement of attributes that do not have multiple values within the same instance of a given entity.

Select all that are correct.

☐ A. The Philosopher entity should have "medium" as an attribute (field).

☐ B. The Eras entity should have "title of work" as an attribute (field).

☐ C. The Works entity should have "Name of Philosopher" as an attribute (field).

✔ ☑ D. The Philosopher entity should have "country of origin" as an attribute (field).

✔ ☑ E. The Works entity should have "title of work" as an attribute (field).

☐ F. The Philosopher entity should have "title of work" as an attribute (field).

✔ ☑ G. The Eras entity should have "name of era" as an attribute (field).

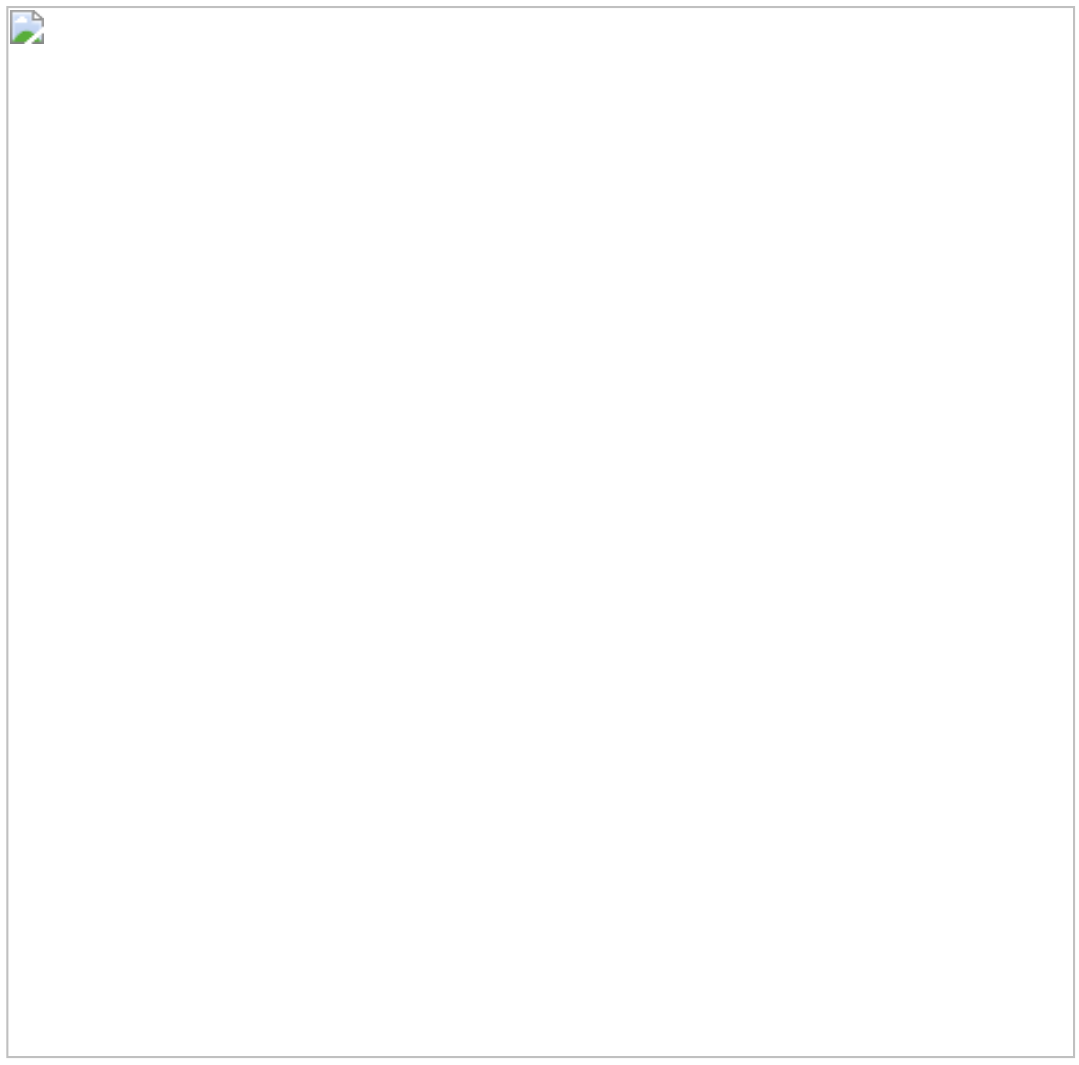
Answer Key: D, E, G

Feedback: Well done!

Question 3 of 10

2.0/ 2.0 Points

Consider the following example of Fitch's Algorithm (back to Dr. Stege's lecture).



What is the Parsimony Score of this tree (S is for stripes, G is for grey)?

A. 5

✔ B. 4

C. 6

D. 7

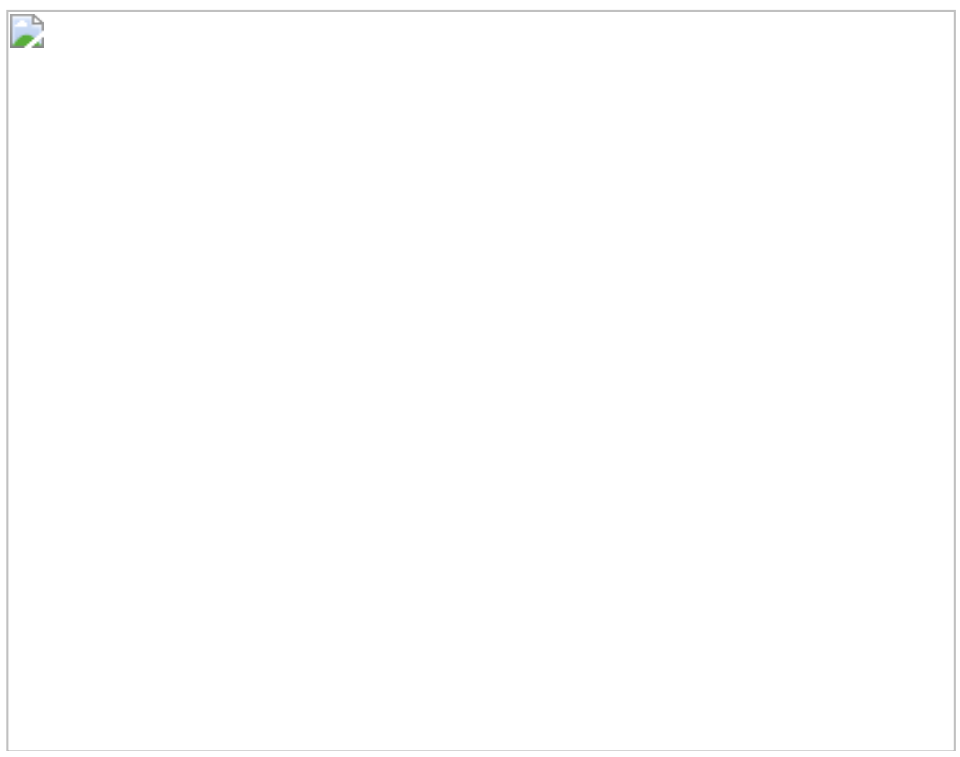
Answer Key: B

Feedback: Well done

Question 4 of 10

2.0/ 2.0 Points

In lab class we did some work with graph theory and discovered that it is often important to have techniques that allow us to visit every node in a given graph. One of the techniques looked at in lab was a Depth First Search. Consider the following graph. It is a tree, with vertex (node) A at the root -- and remember, a tree is just a type of graph.



Using the Depth First Search traversal technique discussed in class (actually, a Pre-Order traverse), what order will the vertices (nodes) be visited in? From the list below select all mappings that are correct. (Hint -- in class we used the classic Pre-order technique of visiting left, then right -- but, starting left is just a convention -- the computer doesn't care, as long as the algorithm is consistent!)

There are lots of tips on how to do this type of thing online -- I like http://youtu.be/9RHO6jU--GU -- give it a try if you need a bit more help with this concept.

- ✔ ☑ A. A, C, G, K, L, J, F, B, E, I, H, D
- ☐ B. A, C, B, G, F, E, D, K, J, I, H, L
- ☐ C. A, B, D, H, I, E, C, F, J, K, L, G
- ☐ D. A, C, K, L, J, G, F, B, I, H, E, D
- ✔ ☑ E. A, B, D, E, H, I, C, F, G J, K, L
- ☐ F. A, B, C, D, E, F, G, H, I, J, K, L

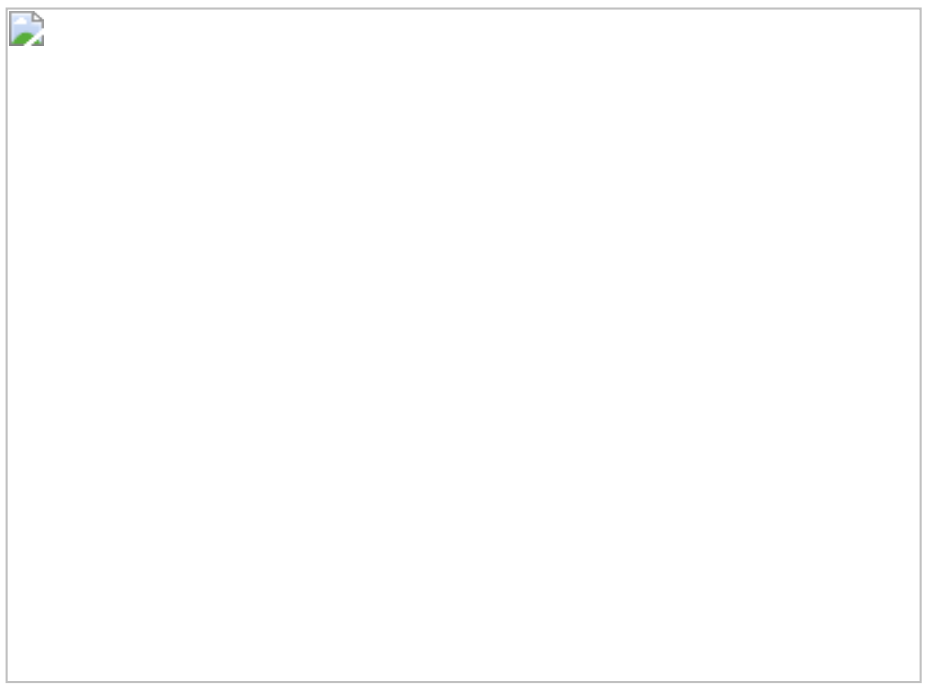
Answer Key: A, E

Feedback: Well done.

Question 5 of 10

2.0/ 2.0 Points

Consider the following graph:



In lab we introduced the idea of a Breadth-First Search. If you applied the BFS technique you learned in lab to this graph, what order would you visit the vertices (nodes) in? Assume that the search starts at vertex S.

Check out Lab 9 in the resources for a refresher on how to do this.

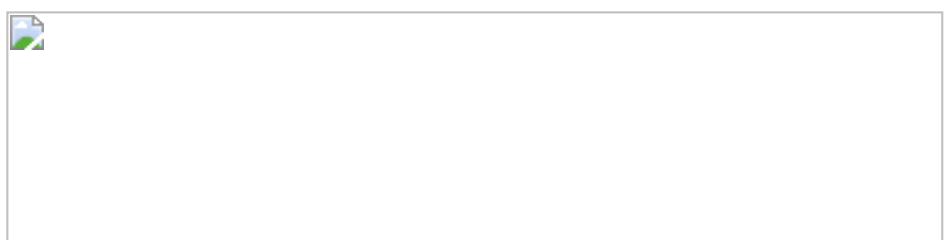
- ○ A. S, A, B, C, D, E
- ✔ ◉ B. S, A, D, B, C, E
- ○ C. E, C, B, D, A, S
- ○ D. S, D, E, A, C, B

Answer Key: B

Question 6 of 10

2.0/ 2.0 Points

In lab class we did some work with graph theory and discovered that it is often important to have techniques that allow us to visit every node in a given graph. One of the techniques looked at in lab was a Breadth First Search. Consider the following graph. It is a tree, with vertex (node) A at the root -- and remember, a tree is just a type of graph.



Using the Breadth First Search traversal technique discussed in class, what order will the vertices (nodes) be visited in? From the list below select all mappings that are correct. (Hint -- in class we used the classic technique of visiting left, then right -- but, starting left is just a convention -- the computer doesn't care, as long as the algorithm is consistent!)

There are lots of tips on how to do this type of thing online -- I like http://youtu.be/9RHO6jU--GU -- give it a try if you need a bit more help with this concept.

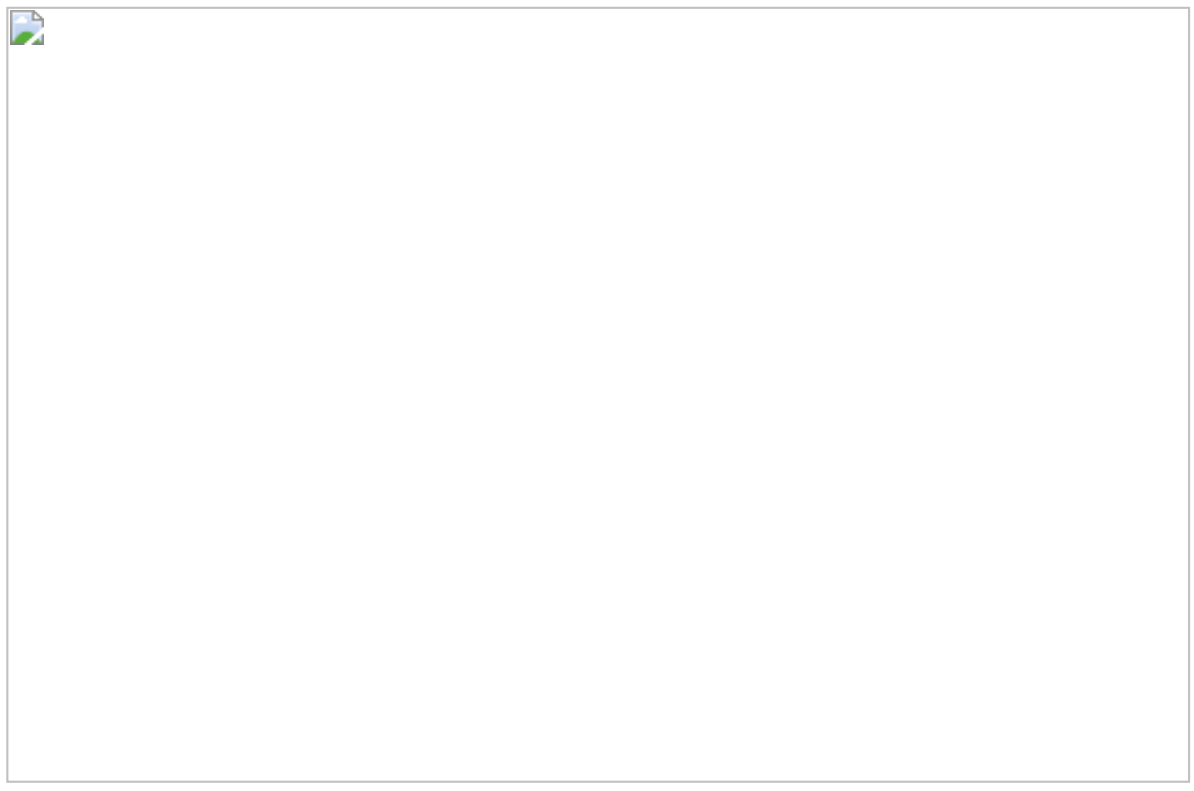
- [ ] A. A, F, E, J, G, L, B, D, C, H, I, K
- [x] B. A, K, L, I, H, G, J, C, D, E, F, B
- [ ] C. J, F, E, G, L, H, D, C, B, I, K, A
- [x] D. A, L, K, J, G, H, I, F, E, D, C, B

Answer Key: B, D

Question 7 of 10

2.0/ 2.0 Points

Consider the following weighted graph -- let us call it G:



Fill in the blanks to correctly answer basic definitional questions about B:

The cardinality of G is ✔ 7

The vertex with the highest degree is ✔ B .

It has a degree of ✔ 4

If you need a bit of help with these definitions, check out http://youtu.be/HmQR8Xy9DeM

Answer Key: 7 |7| 7|7 | seven |seven| seven|seven , B |B|B | B, 4 |4| 4| four | four|four |4

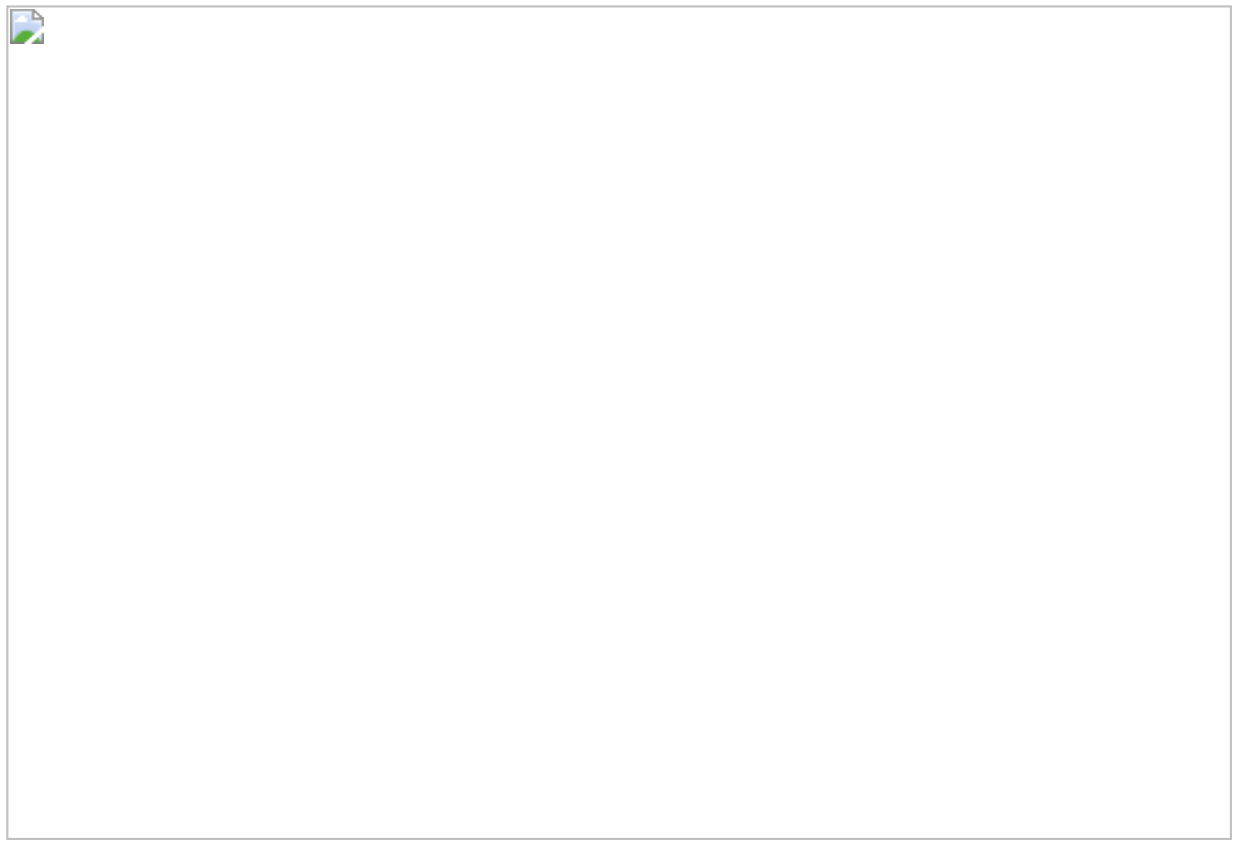
Feedback: Well done

Question 8 of 10

2.0/ 2.0 Points

Accepted characters: numbers, decimal point markers (period or comma), sign indicators (-), spaces (e.g., as thousands separator, 5 000), "E" or "e" (used in scientific notation). **NOTE:** For scientific notation, a period MUST be used as the decimal point marker.
Complex numbers should be in the form (a + bi) where "a" and "b" need to have explicitly stated values.
For example: {1+1i} is valid whereas {1+i} is not. {0+9i} is valid whereas {9i} is not.

Consider the following graph:



Using the Shortest Path technique discussed in Lab class, what value will Distance[End] have? (Integer only -- no decimal, no spaces)
Enter the value here: ✔ 18

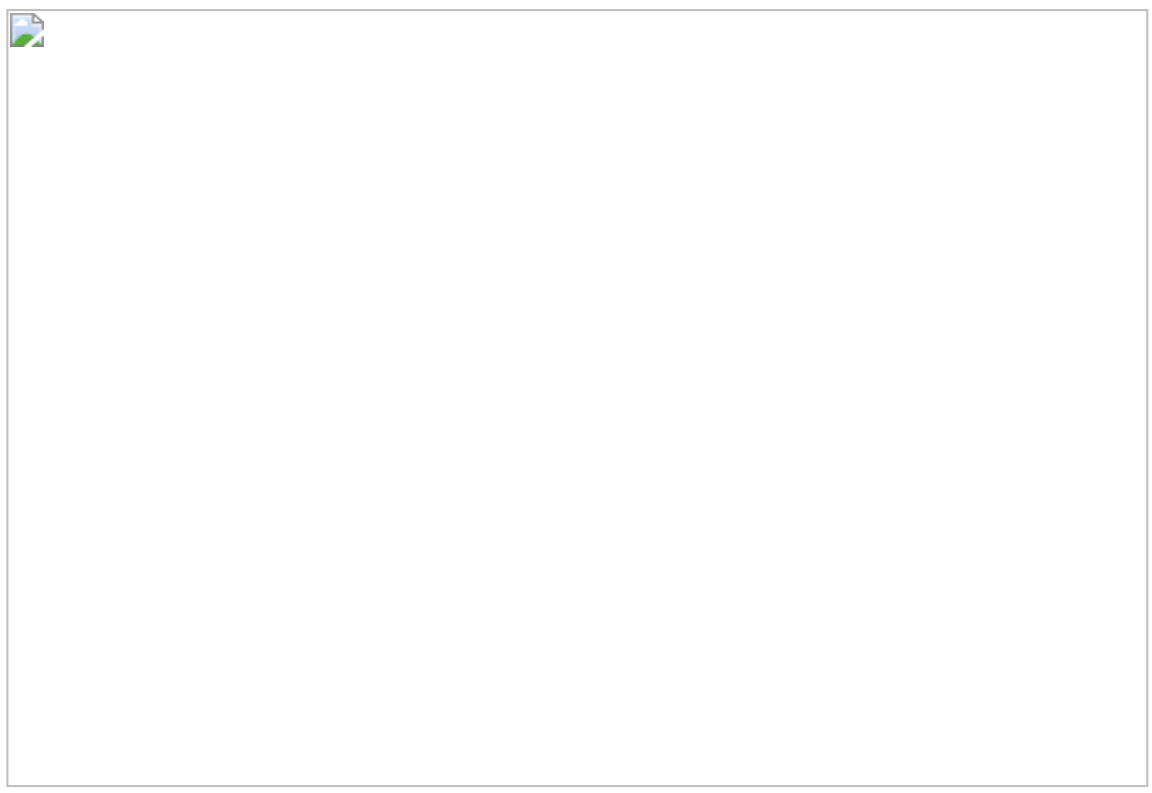
Answer Key: 18

Feedback: Well done.

Question 9 of 10

2.0/ 2.0 Points

Consider the following graph:



Using the Shortest Path algorithm discussed in lab, select the shortest path from Source/Start (vertex S) to End (vertex E).

- A. (S,B), (B,E)
- B. (S,C), (C, F), (F,E)
- ✔ C. (S,A), (A,B), (B,E)
- D. (S,A), (A,B), (B,F), (F,E)

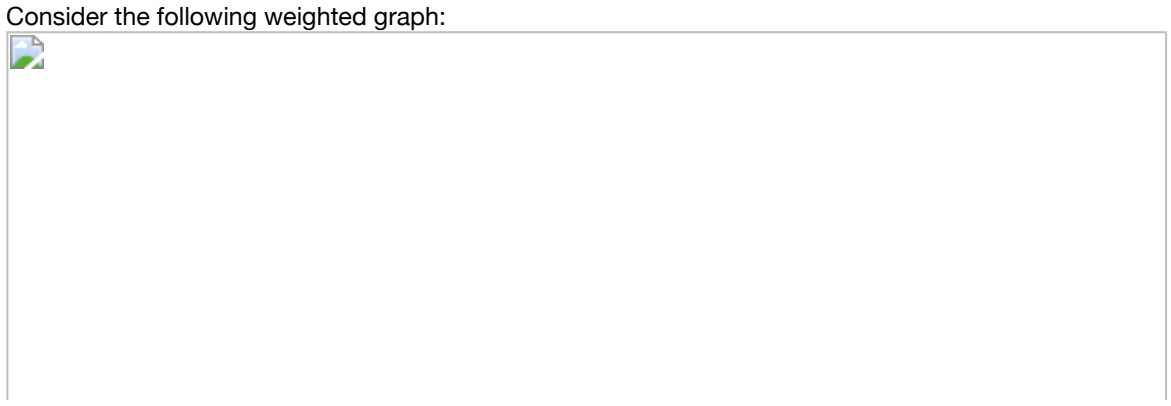
Answer Key: C

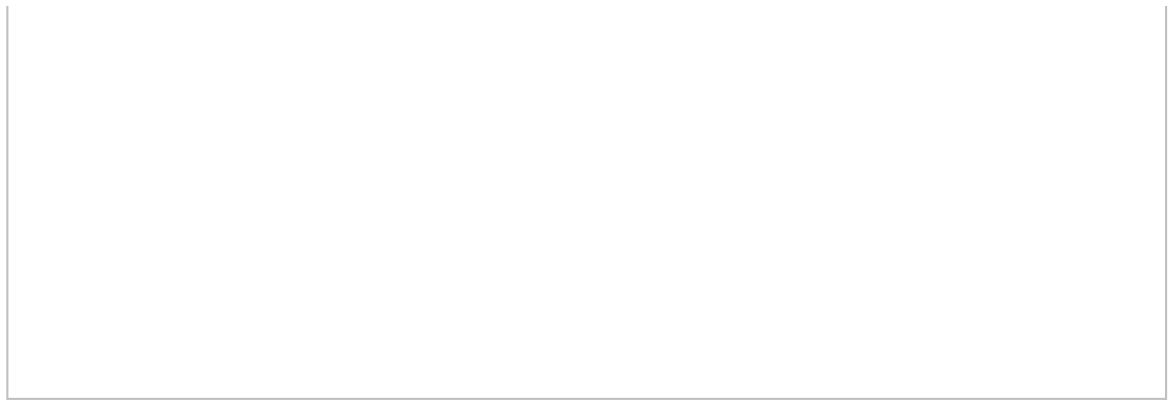
Feedback: Well done

Question 10 of 10

2.0/ 2.0 Points

Consider the following weighted graph:





You have run the Shortest Path algorithm on this graph and have determined the shortest from Start (vertex S) to End (vertex E). What will the distance values of vertices A, B, and F be?

A. Node A: 7
Node B: 9
Node F: 16

✔ B. Node A: 7
Node B: 8
Node F: 15

C. Node A: 7
Node B: 9
Node F: 21

D. Node A: 7
Node B: 1
Node F: 8

Answer Key: B