

Exit quiz 3 September 29 2015

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Last Name (Print):_____

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1) The minimal-spanning tree technique finds the shortest route to a series of destinations.

Answer: FALSE

2) In the minimal-spanning tree technique, it is necessary to start at the last node in the network.

Answer: FALSE

3) The minimal-spanning tree technique determines the path through the network that connects all the points while minimizing total distance.

Answer: TRUE

4) Cable television companies would employ the shortest-route technique to lay out the cables connecting individual houses.

Answer: FALSE

5) In the minimal-spanning tree technique, if there is a tie for the nearest node, that suggests that there may be more than one optimal solution.

Answer: TRUE

6) If your goal was to construct a network in which all points were connected and the distance between them was as short as possible, the technique that you would use is

A) shortest-route.

B) maximal-flow.

C) shortest-spanning tree.

D) minimal-flow.

E) minimal-spanning tree.

Answer: E

7) All the nodes must be connected in which of the following techniques?

A) minimal-flow

B) maximal-spanning tree

C) shortest-route

D) maximal-flow

E) minimal-spanning tree

Answer: E

8) The minimal-spanning tree technique would best be used

A) by a forest ranger seeking to minimize the risk of forest fires.

- B) by a telephone company attempting to lay out wires in a new housing development.
- C) by an airline laying out flight routes.
- D) None of the above
- E) All of the above

Answer: B

9) A point in the network, that is at the beginning of a route is called a(n)

- A) arc.
- B) branch.
- C) line.
- D) node.
- E) source.

Answer: E

10) Transportation models can be used for which of the following decisions?

- A) facility location
- B) production mix
- C) media selection
- D) portfolio selection
- E) employee shift scheduling

Answer: A

11) When using a general LP model for transportation problems, if there are 4 sources and 3 destinations, which of the following statements is true?

- A) There are typically 4 decision variables and 3 constraints.
- B) There are typically 12 decision variables and 7 constraints.
- C) There are typically 7 decision variables and 7 constraints.
- D) There are typically 12 decision variables and 12 constraints.
- E) There are typically 12 decision variables and 3 constraints.

Answer: B

12) The two most common objectives for the assignment problem are the minimization of

- A) uncertainty or inexperience.
- B) total costs or inexperience.
- C) total costs or total time.
- D) total time or inexperience.
- E) total costs or uncertainty.

Answer: C

13) Which of the following statements concerning the transshipment problem are false?

- A) The number of units shipped into a transshipment point should be equal to the number of units shipped out.
- B) There can be constraints on the number of units shipped out of an origin point.
- C) There can be constraints on the number of units shipped into a destination point.
- D) The transshipment problem can be solved with linear programming.
- E) Any units shipped from one origin point must all go to the same destination point.

Answer: E

14) If items being transported must go through an intermediate point before reaching a final destination, then this situation is known as a(n)

- A) transshipment problem.

- B) assignment problem.
- C) transportation problem.
- D) intermediate point problem.
- E) None of the above

Answer: A

- 15) The maximal-flow technique would best be used
- A) to assign workers to jobs in the cheapest manner.
 - B) to determine the number of units to ship from each source to each destination.
 - C) to determine LAN network wiring within a building.
 - D) to maximize traffic flow on a busy highway.
 - E) by a trucking company making frequent but repeatable drops.

Answer: D

- 16) The final node or destination in a network is called a(n)
- A) arc.
 - B) branch.
 - C) source.
 - D) mouth.
 - E) sink.

Answer: E

- 17) Which of the following problems can be solved as a linear program using binary decision variables?
- A) maximal-flow problem
 - B) shortest-route problem
 - C) minimal-spanning tree problem
 - D) A and B
 - E) A, B, and C

Answer: B

- 18) The shortest-route LP model would best be used to
- A) plan the routes for a vacation driving tour.
 - B) plan the route for a school bus.
 - C) determine the path for a truck making frequent runs from a factory to a warehouse.
 - D) All of the above
 - E) None of the above

Answer: D