Assignment 0

A supply chain is generally described as a supply network or supply graph (cf. Fig. 1).

Fig. 1: A supply network

A. Given any supply chain network, it is considered to be a network of supply networks (cf. Fig. 2).

Fig. 2: A network of supply networks

B. A supply chain is a graph with a high level of supply network connectivity to improve its performance and ensure the supply of goods (cf. Fig. 3).

Fig. 3: A graph with high supply network connectivity

C. Transportation depends on the topography offered by high-level network configurations to select the supply chain that is most suitable and efficient in a given situation and the needs of transportation (cf. Fig. 4).

Fig. 4: A topography-dependent supply chain

D. Kotter’s seven-step model for change management emphasizes decision-making initiatives that can either improve the performance of supply chains (cf. Fig. 5).

Fig. 5: Kotter’s seven-step model for change management

E. Which of the following is the derivative of $y = x^3$?

$\frac{dy}{dx} = 3x^2$

F. Which of the following is the second derivative of $F = \frac{1}{3}x^3 - 5x^2 + 10$?

$\frac{d^2F}{dx^2} = 2x - 10$

G. In which case is a supply network considered to be a graph (cf. Fig. 1)?

A. When the network is structured as a tree
B. When the network is not connected
C. When the network is a cycle
D. When the network is not a single node

H. In which case are the vertices of a supply network considered to be connected (cf. Fig. 2)?

A. If the network is a tree
B. If the network is not connected
C. If the network is a cycle
D. If the network is not a single node

I. In which case is the number of supply network vertices considered to be an even number (cf. Fig. 3)?

A. When the network is a tree
B. When the network is not connected
C. When the network is a cycle
D. When the network is not a single node

J. In which case is the number of supply network edges considered to be even (cf. Fig. 3)?

A. When the network is a tree
B. When the network is not connected
C. When the network is a cycle
D. When the network is not a single node

K. In which case is the number of supply network nodes considered to be an even number (cf. Fig. 3)?

A. When the network is a tree
B. When the network is not connected
C. When the network is a cycle
D. When the network is not a single node

L. In which case is the total cost of supply network transportation considered to be minimized (cf. Fig. 4)?

A. When the network is a tree
B. When the network is not connected
C. When the network is a cycle
D. When the network is not a single node

M. In which case is the performance of supply network facilitation considered to be maximized (cf. Fig. 5)?

A. When the network is a tree
B. When the network is not connected
C. When the network is a cycle
D. When the network is not a single node