School of Engineering

E217 – Inventory Management

Quiz for Problem 05: Up and Down

State if the below statement is **TRUE or FALSE**.

1. The Bullwhip Effect is a phenomenon observed in supply chains, where the demand variability increases as one move downstream from manufacturers to retailers
   True / False
   False. It increases as one move upstream from retailers to manufacturers

2. In a typical supply chain consisting of a factory, wholesaler, distributor and retailer, the retailer will be the one who experiences the smallest effects of demand variability.
   True / False

3. Each stage of the supply chain in the Beer Game will experience incoming orders, outgoing orders, incoming deliveries and also outgoing deliveries. Incoming orders are coming from the downstream stage
   True / False

4. The Beer Games highlights the typical coordination problems of traditional supply chains without information sharing and collaboration.
   True / False

5. Through playing the Computerized Beer Game, we understand that coordination problems exist in supply chains. However, the problem reduces if the manufacturing lead-times become shorter but have longer delivery lead-times.
   True / False
   False. It should be shorter manufacturing lead-times and also shorter delivery lead-times

6. Lead-times cause companies to hold safety stock, which in turn reduces the fluctuation in orders placed.
   True / False
   False. It increases the fluctuation in orders placed.

7. One of the methods to reduce Bullwhip Effect is to conduct promotions, discounts and rebates for customers to buy in bulk and clear retailers' stock.
   True / False
   False. When price returns to normal, customer demand will drop. This creates a demand variation which will amplify as it travels upstream to the factory.

8. One of the causes of the Bullwhip Effect is that companies often place orders in batches to reduce order processing costs, save transportation cost or in anticipation of seasonal demands.
   True / False

9. Having accurate information passed on electronically, such as the Internet and Electronic Data Interchange (EDI), can reduces the Bullwhip Effect significantly
   True / False

10. What are the reasons that caused Bullwhip Effect?
    a. No coordination from upstream and downstream of the supply chain
    b. Over reaction to backlogs
    c. Sharing of demand information between all parties of the supply chain
    d. Promotions

    a b d

11. What is not one of the consequences of Bullwhip Effect?
    a. Excessive inventory
    b. Poor forecast accuracy
    c. Insufficient or excessive capacities
    d. Good customer service

    a b c

12. Penny sells Brand A Sofa and Brand B Sofa. Suppose that both Sofas have $3.00 shortage cost and $0.50 inventory holding cost for a day. She has 50 Brand A Sofa and 50 Brand B Sofa in stock in the morning. Today she will receive 50 Brand A Sofa.

    If she has one order of 70 Brand A Sofa and 70 Brand B Sofa, what is the total inventory holding cost and shortage cost for the day?

    a. $100
    b. $120
    c. $75
    d. $5

    Brand B Sofa: 50-70=-20
    Brand A Sofa: 50+50-70=30
    Total cost will be: (20 * 3) + (30 * 0.5) = **$75**