Supplement 13
Operational Decision Making Tools: Linear Programming

True or False Questions

1. Linear programming is a mathematical modeling technique consisting of linear relationships. (True) (Easy)
2. While all linear programming problems consist of an objective function, very few have constraints. (False) (Easy)
3. The most frequent objective of business firms is to minimize operational expenses. (False) (Easy)
4. A linear programming model consists of decision variables, an objective function, and model constraints. (True) (Easy)
5. The objective function is a linear mathematical relationship that describes the restrictions placed on the model’s decision variables. (False) (Easy)
6. A linear programming model’s constraints are almost always nonlinear relationships that describe the restrictions placed on the model’s decision variables. (False) (Medium)
7. Linear programming models with two decision variables can be solved graphically. (True) (Medium)
8. Most real-world linear programming models are solved graphically. (False) (Easy)
9. The feasible solution space contains the values for the decision variables that satisfy the majority of the linear programming model’s constraints. (False) (Medium)
10. The optimal solution is a linear programming model will always occur at an extreme point. (True) (Medium)
11. The simplex method for solving linear programming problems is partially based on the solution of simultaneous equations and matrix algebra. (True) (Medium)
12. Because it provides an optimal solution, sensitivity analysis is not an important component to linear programming. (False) (Medium)

Multiple Choice Questions

13. Linear relationships representing a restriction on decision making in a linear programming model are known as
   a. objective function
   b. constraints
   c. extreme points
   d. slack variables
   (Medium)

14. In a linear programming model the mathematical symbols representing levels of activity of an operation are known as