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 volution space contains the values for the decision variables that satisfy the prajority 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