HW #1 Solutions

3. (a) Decision Variables = s
   (b) Input parameters = p, b, d
   (c) Objective Function: Minimize $(d/s)^2$
   (d) Constraints: $p*s =< b$, $s >= 0$ ($s >= 1$ and $s >= 2$ also accepted)

4. (a) Decision Variables = x_1, x_2
   (b) Input parameters = t_1, c_1, t_2, c_2, b, T
   (c) Objective Function: Minimize $c_1*x_1 + c_2*x_2$
   (d) Constraints: $x_1 + x_2 = b$, $t_1*x_1 + t_2*x_2 =< T$, x_1 and $x_2 >= 0$

5. a) Random Variable
   b) Deterministic
   c) D
   d) RV
   e) D
   f) RV
   g) RV
   h) D
   i) D
   j) RV

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Most appropriate for strategic, or one-time decisions.
Can be used on repetitive decisions if a previous optimal solution has not been realized.
(Some elaboration needed for full credit)

Case Study
Major issues: shareholder welfare, social and environmental responsibility, ethics, profitability and survivability of the firm.

Uncertainty: research and development, new products effectiveness?, new products accepted?, ozone problem an actual problem or just a natural cycle, will Du Pont have an effect?

Views have changed from not seeing a problem to there definitely being a problem as scientific research is examined. Examine consumer views and preferences. Du Pont examining if they can do anything to alleviate the problem.