

Homework #8
Supply Chain Models: Manufacturing & Warehousing (ISyE 3104) – Fall 2002
Due October 24, 2002 AT THE BEGINNING OF THE CLASS

Total 50 points
Show all your work

1. A manager of a store, which sells office items, has to decide the reorder point for a monitor screen cleaner product. He decides to use the (Q,r) model and collects the following data. Product costs \$5 and the annual interest rate is 5%. Annual demand is normally distributed with a mean 5000 and variance 1,000,000. Cost of placing an order is \$100 and the cost of each stockout occasion is \$400. Since it is a relatively small store, orders arrive from the main warehouse precisely 1 week after they have been placed.
The manager gives the utmost importance to its relationships with the customers therefore decides to base his analysis upon prescribed service levels and hires you to assist him in his analysis.
 - a. For a desired **type 1 service level of 0.95**, compute the lot size, and reorder point. (15 points)
 - b. Repeat part a for **type 2 service level of 0.95**. Are the values of Q and R found in part b optimal? If not calculate the optimal values. (15 points)
 - c. Why did you end up with different levels of Q and R in part a and part b although the service level was kept at 0.90? (Why is R with type 1 service higher?) (10 points)
 - d. What kind of penalty costs are associated with the solutions found in part a and part b (10 points)