

ISDS 361B Inventory Review

Part of your business is selling modems for network connection. Demand for modems in your store is about 8,000 units per year. Ordering a shipment of modems costs about \$500 in processing. A modem costs you \$150 and holding a modem in inventory costs you 12% of its cost per year.

1. How many modems should you order each shipment?
a. 231 *b. 667 c. 800 d. 1256 e. none of the above
2. How many times a year should you order?
a. 6.4 b. 10 *c. 12 d. 34.6 e. none of the above
3. Assume 360 days per year. How many days should you wait between two orders?
a. 10.4 *b. 30 c. 36 d. 56 e. none of the above
4. What is the total inventory/ordering cost?
a. 10000 *b. 12000 c. 14000 d. 16000 e. none of the above

Now assume that the supplier gives you the following discount schedule:

0-499	\$150
500-999	\$149
1000-1999	\$148
2000-4999	\$147
5000-	\$146

Your inventory cost remains 12% of \$150.

5. What is the optimal order quantity?
a. 500 b. 1000 *c. 2000 d. 5000 e. none of the above
6. What is the total annual inventory/ordering cost for this quantity?
a. 12000 b. 13000 *c. 20000 d. 45800 e. none of the above
7. What is the annual cost, for this quantity, of purchasing the modems?
a. 1,192,000 b. 1,184,000 *c. 1,176,000 d. 1,168,000 e. none of the above
8. What is the total annual cost for inventory, ordering, and purchasing the modems?
a. 1,192,000 *b. 1,196,000 c. 1,204,000 d. 1,213,800 e. none of the above

In a production process one machine can produce 800 knobs in one day (8 hours). These knobs are used in an assembly line. The assembly line requires only 500 knobs per day. Set-up cost of the machine is \$12. Holding one knob in inventory costs you \$0.40 per hour.

9. How many knobs should be produced by one run of the machine?
*a. 100 b. 126.5 c. 282.8 d. 357.8 e. none of the above

10. How long should one run of the machine take (in hours).
*a. 1 b. 1.265 c. 2.828 d. 3.578 e. none of the above
11. What is the total operating cost per day?
*a. 120 b. 145 c. 339 d. 437 e. none of the above
12. How many runs of the machine should be performed per day?
a. 3 *b. 5 c. 7 d. 8 e. none of the above
13. How much does it cost in set-up/inventory cost per knob?
a. \$0.15 *b. \$0.24 c. \$0.42 d. \$0.68 e. none of the above

You have a business that sells lawn mowers. Your business is open 360 days a year. Your daily demand is 50 mowers with a standard deviation of 20. When you place an order for mowers it takes 6 days for the shipment to arrive. Your holding cost is \$10 per year per mower, and placing an order costs you \$200.

14. What is the optimal order quantity?
a. 537 b. 657 c. 759 *d. 849 e. none of the above
15. What is the total cost for ordering and inventory?
a. 6573 b. 5367 *c. 8485 d. 7589 e. none of the above
16. How many times a year should you order?
a. 13.4 *b. 21.2 c. 19.0 d. 16.4 e. none of the above
17. How many days lapse between two orders?
*a. 17.0 b. 19.0 c. 21.9 d. 26.8 e. none of the above
18. At what level of inventory should you place an order (assume three standard deviations as a “safe” level)?
a. 327 b. 267 *c. 447 d. 387 e. none of the above
19. Your ordering cost has increased to \$250 per order. You reassess the situation. By how much will your total cost increase?
a. 896 b. 633 c. 776 *d. 1002 e. none of the above

You have a business that sells Video cameras. Your business is open 300 days a year. Your daily demand is 20 cameras. Your holding cost is \$10 per camera per year, and placing an order costs you \$200.

20. What is the optimal order quantity?
a. 340 *b. 490 c. 537 d. 749 e. none of the above

21. What is the total cost for ordering and inventory?
 a. 4438 b. 5367 c. 6435 *d. 4899 e. none of the above
22. How many times a year should you order?
 a. 13.4 *b. 12.2 c. 15.3 d. 16.7 e. none of the above
23. How many days lapse between two orders?
 a. 16.1 *b. 24.5 c. 21.6 d. 26.8 e. none of the above

Suppose that your supplier gives you the following discount structure:

Quantity	Price
0-299	\$200
300-499	\$199
500-999	\$198
1000-1999	\$197
2000-	\$196

24. What should be your order quantity?
 a. 300 b. 500 c. 1000 *d. 2000 e. none of the above
25. What is your annual inventory/ordering cost?
 a. 10720 b. 6440 *c. 10600 d. 6200 e. none of the above
26. What is your purchasing cost?
 *a. 1176000 b. 1182000 c. 1411200 d. 1418400 e. none of the above
27. What is the grand total of purchasing, inventory, and ordering cost?
 a. 1424840 b. 1421920 c. 1188200 *d. 1186600 e. none of the above
28. How many times a year should you order?
 *a. 3 b. 6 c. 3.6 d. 7.2 e. none of the above
29. How many days are between two orders?
 *a. 100 b. 50 c. 25 d. 75 e. none of the above