QUESTION

In an EOQ system, the actual parameters are:

$$d = 3000 \text{ parts per year}, \quad h = £3 \text{ per part per year}, \quad s = £125.$$

However, the decision-maker uses the following estimates:

$$d = 3000 \text{ parts per year}, \quad h = £2 \text{ per part per year}, \quad s = £150.$$

(a) What will the decision-maker decide and what is the (actual) cost?

(b) By what percentage would the cost decrease if the actual parameters were used?

ANSWER

(a) The decision maker uses $Q = \sqrt{\frac{2sd}{h}} = \sqrt{\frac{2.150.3000}{2}} = 670.82$

The cost (using actual parameters) is

$$K = \frac{sd}{Q} + \frac{1}{2}hQ = \frac{125.3000}{670.82} + \frac{3}{2}.670.82 = £1565.25$$

(b) With the actual parameters $Q = \sqrt{\frac{2.125.3000}{3}} = 500$ with cost

$K = \frac{125.3000}{500} + \frac{3}{2}.500 = £15000.00$

Decrease in cost as a percentage= $\frac{65.25}{1565.25} \times 100 = 4.17\%$