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MT 14 (Lec) EF

May 6, 2021
Materials Management

Problem 1
Annual usage: 8000 boxes of syringe
Cost of ordering: 10,250 per order
Annual holding cost: 1000 pesos per year
Lead time: 5 days

$$EOQ = \sqrt{\frac{2 \times (annual\ usage \times cost\ of\ ordering)}{annual\ holding\ cost\ per\ unit}}$$
$$= \sqrt{\frac{2 \times (8{,}000 \times 10{,}250\ )}{1{,}000}}$$
$$= \mathbf{405\ boxes\ of\ syringe}$$

$$EOP = \frac{annual\ usage \times lead\ time}{365\ days}$$
$$= \frac{8{,}000 \times 5}{365}$$
$$= \mathbf{110\ boxes\ of\ syringe}$$

$$ROT = \frac{EOQ}{annual\ usage} \times 365\ days$$
$$= \frac{405}{8{,}000} \times 365\ days$$
$$= \mathbf{18\ days}$$

For maximum financial benefit and storage space utilization, order 405 boxes of syringe each time the inventory drops to 110 (about every 18 days).

Problem 2
Annual usage: 2000 boxes of red top tubes
Cost of ordering: 4350 per order
Annual holding cost: 2000 pesos per year
Lead time: 10 days

$$EOP = \frac{annual\ usage \times lead\ time}{365\ days}$$
$$= \frac{2{,}000 \times 10}{365}$$
$$= \mathbf{55\ boxes\ of\ red\ top\ tubes}$$

$$EOQ = \sqrt{\frac{2 \times (annual\ usage \times cost\ of\ ordering)}{annual\ holding\ cost\ per\ unit}}$$
$$= \sqrt{\frac{2 \times (2{,}000 \times 4{,}350\ )}{2{,}000}}$$
$$= \mathbf{93\ boxes\ of\ red\ top\ tubes}$$

$$ROT = \frac{EOQ}{annual\ usage} \times 365\ days$$
$$= \frac{93}{2{,}000} \times 365\ days$$
$$= \mathbf{17\ days}$$

For maximum financial benefit and storage space utilization, order 93 boxes of red top tubes each time the inventory drops to 55 (about every 17 days).

Problem 3
Annual usage: 12000 boxes of glass slides
Cost of ordering: 9850 per order
Annual holding cost: 6000 pesos per year
Lead time: 15 days

$$EOQ = \sqrt{\frac{2 \times (annual\ usage \times cost\ of\ ordering)}{annual\ holding\ cost\ per\ unit}}$$
$$= \sqrt{\frac{2 \times (12{,}000 \times 9{,}850\ )}{6{,}000}}$$
$$= \mathbf{198\ boxes\ of\ glass\ slides}$$

$$EOP = \frac{annual\ usage \times lead\ time}{365\ days}$$
$$= \frac{12{,}000 \times 15}{365}$$
$$= \mathbf{493\ boxes\ of\ glass\ slides}$$

$$ROT = \frac{EOQ}{annual\ usage} \times 365\ days$$
$$= \frac{93}{2{,}000} \times 365\ days$$
$$= \mathbf{6\ days}$$

For maximum financial benefit and storage space utilization, order 198 boxes of glass slide each time the inventory drops to 493 (about every 6 days).