Material Management

Problem 1

Annual Usage: 8,000 boxes of syringe
Cost of Ordering: 10,250 per order
Annual Holding Cost: 1,000 pesos per year
Lead Time: 5 days

Calculations:

EOQ = $\sqrt{\frac{2\ (A\text{}n\ Us\text{}\ \text{}\ C\text{}\ \text{}\ O\text{}O\text{}}{A\text{}n\ C\text{}d\text{}\ C\text{}}}$

EOP = $\frac{A\text{}n\ Us\text{}\ \text{}\ \text{}\ d\text{}}{\frac{(\text{}U)}{365\ \text{}U}}$

$= \sqrt{\frac{2\ (8{,}000\ C\text{}U\ \text{}\ 10{,}250\ \text{}O\ \text{}O)}{1{,}000\ \text{}U\text{}}}$

$\frac{8{,}000\ C\text{}U\ \text{}\ 5}{\frac{\text{}U}{365\ \text{}U}}$

EOQ = 405

EOP = 110

ROT = $\frac{(\text{}\ \text{}\ 365}{\frac{\text{}U)}{A\text{}n\ Us\text{}}}$

$= \frac{405\ \text{}\ 365\ \text{}U}{8{,}000}$

ROT = 18

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: 2,000 boxes of red top tubes
Cost of Ordering: 4,350 per order
Annual Holding Cost: 2,000 pesos per year
Lead Time: 10 days

Calculations:

EOQ = $\sqrt{\frac{2\ (A\text{}n\ Us\text{}\ \text{}\ C\text{}\ \text{}\ O\text{}O\text{}}{A\text{}n\ C\text{}d\text{}\ C\text{}}}$

EOP = $\frac{A\text{}n\ Us\text{}\ \text{}\ \text{}\ d\text{}}{\frac{(\text{}U)}{365\ \text{}U}}$

$= \sqrt{\frac{2\ (2{,}000\ C\text{}U\ \text{}\ 4{,}350\ \text{}O\ \text{}O)}{2{,}000\ \text{}U\text{}}}$

$\frac{\frac{2{,}000\ C\text{}U\ \text{}\ 10}{\frac{\text{}U}{365\ \text{}U}}}{}$

EOQ = 93 **EOP = 55**

ROT = $\frac{(\text{\textdiamond\textdiamond\textdiamond} \text{ \textdiamond } 365 \text{ \textdiamond\textdiamond} U)}{A\text{\textdiamond\textdiamond}n\ Us\text{\textdiamond}}$

$= \frac{93 \text{ \textdiamond } 365 \text{ \textdiamond\textdiamond} U}{2{,}000}$

ROT = 17

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

Problem 3

Annual Usage: 12,000 boxes of syringe
Cost of Ordering: 9,850 per order
Annual Holding Cost: 6,000 pesos per year
Lead Time: 15 days

Calculations:

EOQ = $\sqrt{\frac{2\ (A\text{\textdiamond\textdiamond}n\ Us\text{\textdiamond}\ \text{ \textdiamond } C\text{\textdiamond\textdiamond}\ \text{\textdiamond\textdiamond}\ O\text{\textdiamond}O\text{\textdiamond\textdiamond\textdiamond}}{A\text{\textdiamond\textdiamond}n\ C\text{\textdiamond}d\text{\textdiamond\textdiamond}\ C\text{\textdiamond\textdiamond}}}$

EOP = $\frac{A\text{\textdiamond\textdiamond}n\ Us\text{\textdiamond}\ \text{ \textdiamond } \text{\textdiamond\textdiamond\textdiamond\textdiamond}\ d\text{\textdiamond\textdiamond}}{\frac{(\text{\textdiamond\textdiamond}U)}{365\ \text{\textdiamond\textdiamond}U}}$

$= \sqrt{\frac{2\ (12{,}000\ C\text{\textdiamond}U \text{ \textdiamond } 9{,}850\ \text{\textdiamond}O\ \text{\textdiamond\textdiamond\textdiamond}O)}{6{,}000\ \text{\textdiamond}U\text{\textdiamond\textdiamond}}}$

$\frac{12{,}000\ C\text{\textdiamond}U \text{ \textdiamond } 15}{\frac{\text{\textdiamond\textdiamond}U}{365\ \text{\textdiamond\textdiamond}U}}$

EOQ = 198 **EOP = 493**

ROT = $\frac{(\text{\textdiamond\textdiamond\textdiamond} \text{ \textdiamond } 365 \text{ \textdiamond\textdiamond} U)}{A\text{\textdiamond\textdiamond}n\ Us\text{\textdiamond}}$

$= \frac{198 \text{ \textdiamond } 365\ \text{\textdiamond\textdiamond}U}{12{,}000}$

ROT = 6

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