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#2 (on board)

Annual usage = 9,500 boxes of syringe

cost of ordering = ₱ 15,000 / order

Annual holding cost = ₱ 3500 / year

Lead time = 11 days

$$EOQ = \sqrt{\frac{2 \times (\text{annual usage} \times \text{cost of ordering})}{\text{annual holding cost per unit}}}$$

$$EOQ = \sqrt{\frac{2 \times (9,500 \times 15,000)}{3,500}}$$

$$EOQ = \sqrt{81,428.571}$$

$$EOQ \approx 285.35691$$

EOQ = 285 boxes per order

$$EOP = \frac{\text{annual usage}}{365 \text{ days}} \times \text{lead time in days}$$

$$EOP = \frac{9,500}{365} \times 11$$

$$EOP \approx 286.30137$$

$$EOP = 286 \text{ boxes}$$

$$ROT = \frac{EOQ}{\text{annual usage}} \times 365 \text{ days}$$

$$ROT = \frac{285.35691}{9,500} \times 365 \text{ days}$$

$$ROT \approx 10.96371$$

$$ROT = 11 \text{ days / order}$$

Problem 1

Annual usage: 8,000 boxes of syringe

cost of ordering: ₱ 10,250 / order

Annual holding cost: ₱ 1000 / year

Lead time: 5 days

$$EOQ = \sqrt{\frac{2 \times (\text{annual usage} \times \text{cost of ordering})}{\text{annual holding cost per unit}}}$$

$$EOQ = \sqrt{\frac{2 \times (8,000 \times 10,250)}{1,000}}$$

$$EOQ = \sqrt{164,000}$$

$$EOQ \approx 404.96913$$

EOQ = 405 boxes / order

$$EOP = \frac{\text{annual usage}}{365 \text{ days}} \times \text{lead time in days}$$

$$EOP = \frac{8,000}{365} \times 5$$

$$EOP \approx 109.58904$$

$$EOP = 110 \text{ boxes}$$

$$ROT = \frac{EOQ}{\text{annual usage}} \times 365 \text{ days}$$

$$ROT = \frac{404.96913}{8,000} \times 365$$

$$ROT \approx 18.47672$$

$$ROT = 18 \text{ days / order}$$

Problem 2

Annual usage: 2000 boxes of red top tubes

Cost of ordering: ₱ 4350 / order

Annual holding cost: ₱ 2,000 / year

Lead time: 10 days

$$EOQ = \sqrt{\frac{2 \times (\text{annual usage} \times \text{cost of ordering})}{\text{annual holding cost per unit}}}$$

$$EOQ = \sqrt{\frac{2 \times (2,000 \times 4,350)}{2,000}}$$

$$EOQ = \sqrt{8,700}$$

$$EOQ \approx 93.27579$$

$$EOQ = 93 \text{ boxes / order}$$

$$EOP = \frac{\text{annual usage}}{365 \text{ days}} \times \text{lead time in days}$$

$$EOP = \frac{12000}{365} \times 10$$

$$EOP \approx 32.8767$$

$$EOP = 33 \text{ boxes}$$

$$ROT = \frac{EOP}{\text{annual usage}} \times 365 \text{ days}$$

$$ROT = \frac{32.8767}{12000} \times 365$$

$$ROT \approx 1.00247$$

$$ROT = 1 \text{ day/order}$$

Problem 3

Annual usage: 12000 boxes of glass slides

Cost of ordering: P 9850/order

Annual holding cost: P 6000/year

Lead time: 15 days

$$EOQ = \sqrt{\frac{2 \times (\text{annual usage} \times \text{cost of ordering})}{\text{annual holding cost per unit}}}$$

$$EOQ = \sqrt{\frac{2 \times (12000 \times 9850)}{6000}}$$

$$EOQ = \sqrt{394000}$$

$$EOQ \approx 627.69$$

$$EOQ = 628 \text{ boxes/order}$$

$$EOP = \frac{\text{annual usage}}{365 \text{ days}} \times \text{lead time in days}$$

$$EOP = \frac{12000}{365} \times 15$$

$$EOP \approx 493.15068$$

$$EOP = 493 \text{ boxes}$$

$$ROT = \frac{EOP}{\text{annual usage}} \times 365 \text{ days}$$

$$ROT = \frac{493.15068}{12000} \times 365$$

$$ROT \approx 14.93754$$

$$ROT = 15 \text{ days/order}$$