

THE HONG KONG POLYTECHNIC UNIVERSITY  
HONG KONG COMMUNITY COLLEGE

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**Subject Title** : Introduction to Procurement  
Management

**Subject Code** : CCN2159

**Session** : Semester Two, 2015/16

**Numerical Answers**

**Question B1**

(a) Annual demand rate  $D$  : 1000 boxes  $\times$  26 weeks = 26,000 boxes

Setup cost  $S$  : \$30

Unit cost  $C$  : \$50

Percent carrying cost  $i$  : 15%  $\Rightarrow$  Annual unit holding cost  $H$  = \$100  $\times$  15% = \$15

$$\begin{aligned}EOQ &= \sqrt{\frac{2DS}{H}} \\ &= \sqrt{\frac{2 \times 26,000 \times 30}{15}} \\ &= \mathbf{322 \text{ Units (Q)}}\end{aligned}$$

Total annual cost  $TC$ :  $\frac{D}{Q}S + \frac{Q}{2}H + DC$

$Q = 1500$  boxes/order:  $[(26,000/1500) \times \$30] + [(1500/2) \times \$15] + (\$50 \times 26,000) = \$1,311,770$

$EOQ = 322$  boxes/order:  $[(26,000/322) \times \$30] + [(322/2) \times \$15] + (\$50 \times 26,000) = \$1,304,837$

**The difference of (\$1,311,770 - \$1,304,837) = \$6,933**