

THE HONG KONG POLYTECHNIC UNIVERSITY  
HONG KONG COMMUNITY COLLEGE

**Subject Title** : Introduction to Inventory and  
Warehousing Management

**Subject Code** : CCN2127

**Session** : Semester One, 2018/19

**Numerical Answers**

**Question B3**

(a) **Calculate the EOQ**

$$EOQ = \sqrt{\frac{2DS}{H}}$$
$$= \sqrt{\frac{2 \times 1000 \times 4 \times 20}{30}}$$

$$EOQ = 73 \text{ units}$$

(b) **Calculate the Reorder Point**

$$R = \bar{d}L$$

$$4,000 / 280 \times 14 = 200 \text{ units}$$

(c) **How many times per year does Professional Sport Company reorder?**

$$D/Q$$

$$= 4,000 / 73$$

$$\text{Number of reorders} = 55 \text{ orders / year}$$

(d) **What is the Total Annual Cost (TAC)?**

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

EOQ= 73 footballs /order:  $[(4,000/73) \times \$20] + [(73/2) \times \$30] + (\$50 \times 4,000)$   
 $= 1,095.89 + 1,095 + 200,000$   
 $= \$202,191$

(e) **What extra costs does Professional Sport Company incurs?**

EOQ= 5,000 footballs/order:  $[(4,000/5,000) \times \$20] + [(5,000/2) \times \$30] + (\$50 \times 4,000)$   
 $= 16 + 75,000 + 200,000$   
 $= \$275,016$

**The difference of \$72,825 is significant**