



Name: \_\_\_\_\_ ( ) Class: \_\_\_\_\_ Date: \_\_\_\_\_

**MA302.5.E1 - Matrices Exercise**

1. The price lists for some computer parts from three electronics shops are as follows.

|        | Storage Disk | Memory | CPU   | Software |
|--------|--------------|--------|-------|----------|
| Shop A | \$120        | \$80   | \$350 | \$160    |
| Shop B | \$100        | \$85   | \$320 | \$180    |
| Shop C | \$120        | \$60   | \$300 | \$200    |

Shawn needs to purchase 5 storage disks, 10 pieces of memory sticks, 4 CPU chips and 8 sets of software for his laboratory project. Using a **matrix method**, determine which shop he should patronise in order to spend the least. Show all your working clearly.

2. A factory produces two types of toys – automated and clockwork. The following table shows the cost of the components used in producing each toy.

|           | Labour<br>(hours) | Material<br>(boxes) | Electricity<br>(units) |
|-----------|-------------------|---------------------|------------------------|
| Automated | 7                 | 5                   | 0.5                    |
| Clockwork | 4                 | 3                   | 0.3                    |

- (a) Represent the information given in the table as a  $2 \times 3$  matrix **P**.

Labour costs \$6 per hour, the material used costs \$1 per box and electricity costs 22 cents per unit.

- (b) (i) Represent this information as a column matrix **C**.  
(ii) Evaluate **PC**.  
(iii) Explain what the elements in **PC** represent.
- (c) (i) If  $\mathbf{X} = \begin{pmatrix} 2800 & 3200 \end{pmatrix}$ , evaluate **XPC**.  
(ii) Explain what **XPC** represent.