## Series N° 4

## **Exercise 1**

**Polyvinyl chloride** (PVC), with the formula  $-CH_2-CHCl_n$ , is a polymer obtained by addition.

- 1. Provide the formula of the corresponding monomer.
- 2. Calculate the molar mass **M** of this monomer.
- 3. The average molar mass of the polymer is  $M' = 121,000 \text{ g} \cdot \text{mol}^{-1}$ . Calculate the degree of polymerization of this polymer.

## Exercise 2

Propanal PCl<sub>5</sub> KOH NaOH

(A) C<sub>3</sub>H<sub>6</sub>Cl<sub>2</sub> (B) C<sub>3</sub>H<sub>4</sub> (C) C<sub>3</sub>H<sub>3</sub>Na

Propanal

(F) C<sub>6</sub>H<sub>10</sub>

$$\Delta$$

(E) C<sub>6</sub>H<sub>12</sub>O

(D) C<sub>6</sub>H<sub>10</sub>O

 $\Delta$ 
 $\Delta$ 

(G) C<sub>10</sub>H<sub>16</sub>O<sub>2</sub>

(H) C<sub>10</sub>H<sub>12</sub>O<sub>2</sub>

## Exercise 3

Reconstituer les réactions suivantes en remplaçant les lettres par les composés organiques correspondants :

A 
$$\xrightarrow{HNO_3}$$
 B  $\xrightarrow{Fe/HCI}$  C  $\xrightarrow{NaNO_2}$  D  $\xrightarrow{KCN}$  E

A  $\xrightarrow{Cl_2}$  F  $\xrightarrow{Mg}$  G

E + G  $\xrightarrow{H_2O}$  H

 $C_6H_5\text{-CHO}$  + G  $\xrightarrow{H_2O}$   $C_6H_5\text{-CHOH-}C_6H_5$