

## Homework exercises for the 1<sup>st</sup> Year

- I: Research the uses of the laboratory apparatus that you have on your worksheets and find the definition of distillation.

II: Try to design an experiment to separate water and alcohol using distillation.
- I: Find the definitions of these words when used in Chemistry: Solution; solvent; solute; saturated; stir; dissolve; soluble; insoluble.

II: Describe how to make 500cm<sup>3</sup> of a 0.1 mol/dm<sup>3</sup> solution of potassium chloride.
- I: Discover the connection between an element's Group of the Periodic Table and the number of electrons in its outer shell.

II: What element is in the 3<sup>rd</sup> Period and Group V of the Period Table? How many electrons are in its outer shell? What ion do you think it would form in reactions?
- I: Discover what an oxidation number of an element is.

II: Write the oxidation number for all elements in the following compounds:  
(i) NaCl;      (ii) H<sub>2</sub>S;      (iii) H<sub>2</sub>SO<sub>3</sub>;      (iv) MgTeO<sub>4</sub>.
- I: Discover what types of elements have ionic bonds and what types have covalent bonds between them.

II: What bonds would you expect to find in these compounds?  
(i) PCl<sub>3</sub>;      (ii) MgBr<sub>2</sub>;      (iii) Cs<sub>2</sub>S;      (iv) SO<sub>3</sub>.