SNV Department

TCE3 (LMD) 2020/2021

Course 3

Exercises

What is Chemistry?

1. How would you define chemistry? What is the scope of its study?

2. What definition of chemistry was mentioned in course 2?

3. Read the text (course 2). How many meanings of the word chemistry are mentioned in the text?

4. Which branches of science are, according to the text, closely related to chemistry? Do you agree?

5. Why, according to the article, is chemistry a science? What criteria are mentioned?

6. Do you think that mathematics is an essential tool for the study of chemistry, as the article says? Do the students of chemistry need to study mathematics?

7. What is the meaning of the following words?

Thesis hypothesis

Plural in English

1. Find the examples of plural words in the text. What are the rules for forming plural in English?

2. Are there any exceptions to these rules?

3. Some English words only occur in plural. Can you think of any examples?

Some of these words look like plural but are used with a verb in singular, e.g.: Politics is a very interesting topic.

Mathematics is an essential tool for studying other sciences.

4. Some English words only occur in singular. Can you think of any examples?

Latin and Greek plural

Some words which retain their original Greek and Latin forms make their plurals according to the rules of Greek and Latin with English pronunciation.

e.g.: radius radii

Greek words: singular ending: synthesis , plural ending: syntheses

hypothesis: ....., phenomenon: ....., criterion:.....

Some of these words have double plural form: formula: formulae and formulas.

Some words follow the English rules: dogma dogmas.

Fundamental concepts of chemistry

1. Read the text and fill in the gaps with the following expressions in appropriate forms. Use each expression only once.

chemical formula, chemical equation, proton, neutron, element, electron, atomic nucleus, molecule, cation, anion, chemical compound, chemical reaction, chemical bonds, ion, molecule, atomic number.

An atom is a collection of matter consisting of a positively charged core (the.....) which contains .....and .....and which maintains a number of electrons to balance the positive charge in the nucleus. The atom is also the smallest portion into which an.....can be divided and still retain its properties, made up of a dense, positively charged nucleus surrounded by a system of.....

The most basic chemical substances are the chemical elements. They are building blocks of all other substances. An element is a class of atoms which have the same number of protons in the nucleus. This number is known as the.....of the element. For example, all atoms with 6 protons in their nuclei are atoms of the chemical element carbon, and all atoms with 92 protons in their nuclei are atoms of the element uranium. Each chemical element is made up of only one kind of atom. The atoms of one element differ from those of all other elements. Chemists use letters of the alphabet as symbols for the elements. In total, 117 elements have been observed as of 2007, of which 94 occur naturally

on Earth. Others have been produced artificially. An.....is an atom or a molecule that has lost or gained one or more electrons. Positively charged.....(e.g. sodium cation Na^+) and negatively charged .....(e.g. chloride Cl^-) can form neutral salts (e.g. sodium chloride NaCl).

Electrical forces at the atomic level create.....that join two or more atoms together, forming.....some molecules consist of atoms of a single element. Oxygen molecules, for example, are made up of two oxygen atoms. Chemists represent the oxygen molecule O_2. The 2 indicates the number of atoms in the molecule. When atoms of two or more different elements bond together, they form a .....Water is a compound made up of two hydrogen atoms and one oxygen atom. The .....for a water molecule is H_2O. Compounds are formed or broken down by means of.....All chemical reactions involve the formation or destruction of chemical bonds. Chemists use.....to express what occurs in chemical reactions. Chemical equations consist of chemical formulas and symbols that show the substances involved in chemical change. For example, the equation

$$C + O_2 \rightarrow CO_2$$

expresses the chemical change that occurs when one carbon atom reacts, or bonds, with an oxygen molecule. The reaction produces one molecule of carbon dioxide, which has the formula CO_2.

2. Read the article again. The names of which chemical elements and compounds can you find there?

3. What is the meaning of the following expressions:

chemical bonds, bond together, dense, density.

Exercises:

Exercise 1: Choose the correct form of the verb, singular or plural.

1. Physics was/were my best subject in school.

2. Can I borrow your scissors? Mine isn't/aren't sharp enough.

3. Do you think the people is/are happy with the government?

4. Gymnastics is/are my favorite sport.

5. The trousers you bought for me doesn't/don't fit me.

Exercise 2: Change the following sentences from plural to singular.

1. What criteria did the scientists use?

2. The formulae represent the molecular structures of the substances?

3. The investigated phenomena are not frequent.

4. The analyses of the results did not prove his hypotheses.

Exercise 3: Write the plural form of the words in bold.

1. Even the best psychiatrists sometimes make mistakes in their **diagnosis** and treatment.

2. Nuclear energy is produced using the heat generated by splitting the **nucleus** of atoms of certain elements.

3. Atoms emit or absorb **quantum** of equal energy.

4. Chemical **equilibrium** may be classified into two groups, namely homogeneous and heterogeneous **equilibrium.**

5. After analyzing the **datum**, they were able to draw conclusions.