



FOR EVALUATORS		
Points: positive: _____	negative: _____	Total: _____
Graded by: _____		

Part one

Answer by encircling the letter in front of one of the offered answers. Each correct answer is worth 2 points. A wrong answer is penalized by -0.25 points. Unanswered questions do not alter the score. Using a pencil, encircling of two or more answers or drawing over the answer is penalized by -0.25 points.

- What will happen if you put frozen ice-cream in a metal bowl at room temperature?
 - The heat will be transferred from the metal bowl to the ice-cream.
 - The heat will be transferred from the ice-cream to the metal bowl.
 - Coldness will be transferred from the metal bowl to the ice-cream.
 - Coldness will be transferred from the ice-cream to the metal bowl.
- If we want to examine which material is the best for making a bookshelf, we need to check:
 - if it is wooden.
 - how much it bends when there are books on it.
 - how much it bends when there are no books on it.
 - how many books can be put on it.
- In the process of making jewelry, gold is usually mixed with:
 - lead.
 - platinum.
 - silver.
 - tin.
- Which of the chemical formulas below represent a formula unit?
 - NO_2 .
 - N_2 .
 - Na_2O .
 - Na .
- How many atoms are there in one unit of lead(IV) carbonate?
 - 5.
 - 8.
 - 9.
 - 17.
- The process of vaporization can be used for separation of the salt from the sea water. How can you collect the pure water obtained by this process?
 - By filtration.
 - By condensation.
 - By dissolving.
 - It is not possible to collect the water.
- What are you going to measure if you want to determine the solubility of different substances in water under certain conditions?
 - The temperature of the obtained solution.
 - Time required to dissolve the substance.
 - Number of stirs of the spoon required to completely dissolve the substance.
 - Number of spoonful of the substance that can be dissolved.
- The product obtained by combination of copper and bromine is:
 - copper bromate.
 - copper bromide.
 - copper bromite.
 - none of the above.
- Which of the following word equations is wrong?
 - sodium chloride \rightarrow sodium + chlorine
 - hydrogen + chlorine \rightarrow hydrogen chlorine
 - iron + sulfuric acid \rightarrow iron(III) sulfate + hydrogen
 - aluminum + iodine \rightarrow aluminum iodide
- Bromocresole green is an indicator that has a yellow-orange color in:
 - yogurt.
 - bleach.
 - shampoo.
 - ammonia.

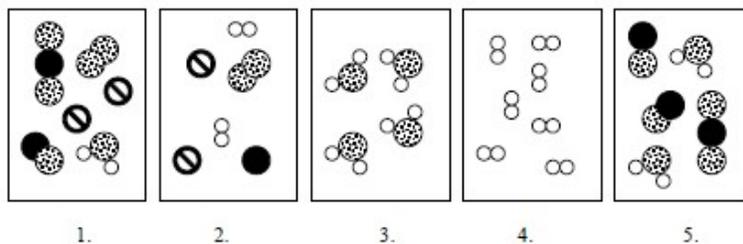
11. Small amount of acid is added to metal strips. What can be noticed if the metal reacts with the acid?
- Burning.
 - Melting.
 - Gas evolution.
 - No visible change will occur.
12. According to the following word equation, answer which elements are present as reactants: magnesium carbonate + hydrochloric acid \rightarrow magnesium chloride + water + carbon dioxide.
- Mg, C, H, Cl.
 - Mg, C, O₂, H₂, Cl₂.
 - Mg, C, O, H, Cl.
 - Mg, C₂, O₂, H₂, Cl₂.
13. When aqueous solution of sodium hydroxide is added to aqueous solution of certain salts, a precipitate is formed. Which salt gives light blue precipitate when sodium hydroxide is added?
- Copper(I) salt.
 - Copper(II) salt.
 - Iron(II) salt.
 - Iron(III) salt.
14. What has to burn in order to get water as a product?
- Hydrogen.
 - Oxygen.
 - Coal.
 - Nothing of the above.
15. In which barium compound series given below the chemical formulas are correctly written?
- BaSO₄ BaNO₃ BaS BaCl₂
 - BaSO₄ Ba(NO₃)₂ Ba₂S₃ BaCl
 - Ba(SO₄)₂ Ba(NO₃)₂ BaS₂ BaCl₂
 - BaSO₄ Ba(NO₃)₂ BaS BaCl₂

Part two

Answer according to the requirements. Answers written by pencil will be marked with 0 points.

1. In the figures below marked by numbers from 1 to 5, five different types of substances are illustrated by certain symbols (circles). Each symbol (circle) represents an atom of a certain element.

(9)



- I. In Table 1, write down just one letter (A–E) in each empty cell. Some letters can be used multiple times and others might not be used at all.
- elementary substance
 - compound
 - mixture of elementary substances
 - mixture of compounds
 - mixture of elementary substances and compounds

Table 1	
Figure	Type of substance
1	
2	
3	
4	
5	

- II. If you know that on the figures given above, the symbols (circles) of the atoms/molecules represent: He, H₂, C, O₂, H₂O, CO₂ and CO, determine the chemical nature of each atom in Table 2. In the empty cells write down the corresponding chemical symbols.

Table 2			

2. Write down the names of the laboratory equipment given on the pictures below:

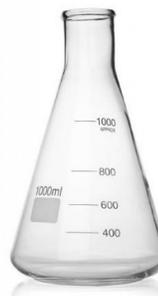
(3)



a



b



c

a: _____

b: _____

c: _____

(4)

- | | | |
|---|-----|----|
| A. Physical properties are always dependent on the amount of the sample under investigation. | YES | NO |
| B. Chemical properties are always dependent on the amount of the sample under investigation. | YES | NO |
| C. Due to the presence of some metal salts that color the flame, fireworks can have different color. | YES | NO |
| D. When certain substance goes from one state of matter to another, its chemical properties stay unchanged. | YES | NO |

3. Write down the chemical formulas or the names of the following compounds:

(4)

- | | |
|--------------------------------------|-------|
| A. magnesium phosphate | _____ |
| B. Cl ₂ O ₅ | _____ |
| C. nickel(III) oxide | _____ |
| D. Zn(NO ₃) ₂ | _____ |

