

**INVESTIGATING THE PRESENCE OF MISCONCEPTIONS OF 8<sup>TH</sup> GRADE  
STUDENTS THROUGH MULTIPLE-CHOICE QUESTIONS AT NATIONAL  
CHEMISTRY COMPETITION TESTS**

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**Appendix 1. The first part of the National chemistry competition test**

**IT IS FORBIDDEN TO LEAVE ANY KIND OF MARKINGS ON THE EXAM OR THE ENVELOPE!**

**PART ONE**

**Answer properly by circling the letter that is in front of one of the offered answers. You will get 0 points if you mark with pencil, if you circle two or more answers or if you cross out the answer. Each correct answer is worth 2 points.**

1. Laboratory funnels are used for:

- A. filtration
- B. transferring liquids
- C. storing liquids
- D. A and B are correct
- E. B and C are correct

2. In the table below the properties of four metals (A–D) are given. Which metal is the most appropriate for manufacturing of airplanes?

<b>Metal</b>	<b>Density</b>	<b>Strength</b>	<b>Corrosion resistance</b>
<b>A</b>	high	high	low
<b>B</b>	high	low	low
<b>C</b>	low	high	high
<b>D</b>	low	low	high

A. A

B. B

- C. C
  - D. D
  - E. It cannot be determined.
3. What is **NOT** true about gaseous ammonia ( $\text{NH}_3$ )?
- A. It is composed of molecules of ammonia
  - B. It is composed of molecules of nitrogen and molecules of hydrogen
  - C. It is a compound
  - D. It is a pure substance
  - E. It diffuses more readily than hydrogen chloride
4. The metal M reacts with chlorine to give a compound with a formula  $\text{MCl}_2$ .  $\text{MCl}_2$  colors the flame brick-red color. Precipitate is obtained when aqueous solution of  $\text{MCl}_2$  reacts with aqueous NaOH solution. The metal M is:
- A. calcium
  - B. potassium
  - C. lithium
  - D. barium
  - E. copper
5. During electrolysis of water that contains small amount of diluted sulfuric acid, the reactant(s) is/are:
- A. water
  - B. sulfuric acid
  - C. water and sulfuric acid

D. hydrogen and oxygen

E. sulfur

6. What kind of product is obtained when we carry out combustion of sulfur in air?

A. yellow powder

B. transparent liquid

C. blue liquid

D. colorless gas

E. blue gas

7. The pH value of fresh milk is 6. If this milk turns sour, the pH would be:

A. 4

B. 6

C. 7

D. 8

E. 10

8. The universal indicator is added to a colorless/transparent liquid. The color changes to dark blue. The liquid substance is:

A. sodium chloride solution

B. solution of baking soda

C. sucrose solution

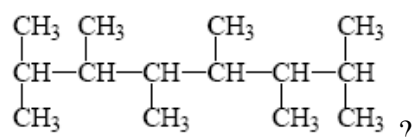
D. rain water

E. acid rain

9. Which of the following is a source of carbon dioxide:

- A. decomposition of plant material
- B. evaporation of sea water
- C. plant respiration
- D. rice fields
- E. cattle farming

10. What is the correct IUPAC name of the following compound



- A. 1,2,3,4,5,6-hexamethyloctan
- B. 1,1,2,3,4,5,6,6-octamethylhexane
- C. 1,2,3,4,5,6-hexamethyleneoctane
- D. 1,1,2,3,4,5,6,6-octamethylenehexane
- E. 2,3,4,5,6,7-hexamethyloctane