

Extra Practice Sheet | lower Secondary Stage (6-8)

1st Semester | 2023-2024

Subject: Chemistry

Objectives:

- To be able to classify changes into endothermic and exothermic
- To be able to compare physical and chemical changes

Question one: Choose the correct answer

Change 1. When calcium carbonate forms calcium oxide and carbon dioxide heat is absorbed.

Change 2. Calcium oxide releases heat when shaken with carbon dioxide.

Which line BEST describes these changes?

- change 1 is exothermic; change 2 is endothermic
- change 1 is endothermic; change 2 is endothermic
- change 1 is exothermic; change 2 is exothermic
- change 1 is endothermic; change 2 is exothermic

2. Which of the following involves a chemical reaction?

- cooking a cake
- filtering sand from water
- distilling oil
- melting ice

3. Which of these processes is always exothermic?

- evaporation
- insulation
- combustion
- Melting

4. When ammonium chloride dissolves in water the temperature of water falls. The type of energy change is described as?

- exothermic
- activated
- endothermic
- a decomposition

5. Which of these involves a physical change and NOT a chemical reaction?

- apples decaying
- iron rusting
- frying potatoes
- boiling water

6. Which of the following is a physical change?

- adding sodium to water
- leaving milk to go sour
- stirring sugar with tea
- mixing salt with water

7. The chemical change when a fuel burns can be described as?

- a precipitation
- an exothermic reaction
- a reversible reaction
- an endothermic reaction

8. Heat is taken in when ammonium nitrate dissolves in water. This is an example of?

- exothermic change
- endothermic change
- melting
- thermal decomposition

9. Equal amounts of four different substances (A -D) were added separately to equal amounts of an acid and a thermometer placed in the mixture. For which substance is the reaction the most endothermic?

- temperature rises by 5°C
- temperature falls by 3°C
- temperature rises by 3°C
- temperature falls by 5°C

Question two:

Classify the following reactions as endothermic or exothermic. 5.0 g of five different solids were added to 20.0 mL of water and the temperature was monitored until the entire solid dissolved.

Solid	Beginning Water Temperature (°C)	Final Water Temperature (°C)	Change in Water Temperature (°C)
NH ₄ NO ₃	25.4	22.1	-3.3
CaCl ₂	25.4	28.9	+3.5
LiCl	25.4	23.9	-1.5
NaCl	25.4	25.1	-0.3
NaOH	25.4	29.5	+4.1

1. List the solids that underwent exothermic change:
2. List the solids that underwent endothermic reactions:
3. The substance that transferred most energy **from the surrounding** is
4. The substance that transferred least energy **to the surrounding** is

Answer Key

Question one:

1. change 1 is endothermic; change 2 is exothermic
2. cooking a cake
3. combustion
4. endothermic
5. boiling water
6. stirring sugar with tea
7. an exothermic reaction
8. endothermic charge
9. temperature falls by 5°C

Question two:

1. CaCl₂, NaOH
2. NH₄NO₃, LiCl, NaCl
3. NH₄NO₃... (causing the greatest drop in the temp.)
4. CaCl₂ (causing the least rise in the temp.)