Energy is typically described as the ability to perform work. There are different forms of energy: kinetic and potential. Every piece of matter possesses some energy, which we refer to as internal energy. We can define internal energy as the total amount of energy (both potential and kinetic) in a sample of a substance. Different forms of energy can be converted into one another, but energy cannot be lost; this principle is known as the law of conservation of energy, which is the first law of thermodynamics.

Heat is a form of energy that flows from something hot to something cold, in accordance with the second law of thermodynamics. The question of why heat flows in this direction can be explained by the concept of entropy, which represents chaos or disorder. According to the second law of thermodynamics, in a closed system without external interference, entropy can only increase. Heat naturally flows in the direction that increases entropy. Consequently, every energy transfer in the universe leads to an increase in entropy. The first law informs us about the conservation of energy, while the second law tells us about the direction of this process.

The First law:
$Q = \Delta U + A$
Q – heat
ΔU – internal energy change
A – work

In an exothermic reactions heat is transferred from chemical reaction (system) to the surrounding. Surrounding will get hotter.
In an endothermic reactions everything outside will get cooler.

Questions:

Hint: you can use educated guess.
Choose two endothermic reactions from the following:

1. Reaction of ammonia and oxygen.
2. Decomposition of calcium carbonate.
3. Electrolysis of water.
4. Oxidation of sulfur oxide (IV).
5. Reaction of potassium with water.

Choose two exothermic reactions from the following:

1. Decomposition of iron hydroxide (III)
2. Interaction of calcium and sulfur.
3. Interaction of sulfur with oxygen.
4. Decomposition of magnesium carbonate.
5. Reaction of nitrogen with oxygen.