

Chemical Energy Questions with Solutions

Q1. Which of the following device converts chemical energy into electrical energy?

- a.) Lightning rod
- b.) Cell
- c.) Light bulb
- d.) Switch

Correct Answer– (b.) Cell

Q2. Light energy can be transformed into chemical energy by which of the following process?

- a.) Photosynthesis
- b.) Respiration
- c.) Recycling
- d.) Reproduction

Correct Answer– (a.) Photosynthesis

Q3. Chemical energy is stored in-

- a.) Coal
- b.) Food
- c.) Atoms
- d.) All of the above

Correct Answer– (d.) All of the above

Q4. Chemical energy is an example of-

- a.) renewable energy
- b.) Non-renewable energy
- c.) Potential energy
- d.) None of the above

Correct Answer– (b.) Non-renewable energy, (c.) Potential energy

Q5. Fill in the blank.

_____ is the amount of energy needed to break a compound containing chemical energy.

Answer. Bond enthalpy is the amount of energy needed to break a compound containing chemical energy.

Q6. State True or False.

Muscular energy is a form of chemical energy.

Answer. True.

Muscular energy is a form of chemical energy. It is produced by a long series of chemical reactions in which muscles use the chemical energy stored in the food we eat.

Q7. How many types of reactions are there?

Answer. Chemical reactions are classified into six types: synthesis, combustion, single displacement, double displacement, decomposition, and acid-base reactions.

Q8. Why is chemical energy considered not renewable?

Answer. Energy can be converted from one state to another (stored to kinetic), but it cannot be created or destroyed. As a result, the chemical is not renewable, but rather non-renewable.

Q9. What is chemical energy stored in?

Answer. Chemical energy is stored in the bonds of atoms and molecules.

Q10. Is chemical energy considered as kinetic or potential?

Answer. The energy in a molecule's chemical bonds is related to the molecule's structure and the positions of its atoms relative to one another. As a result, chemical energy, or the energy stored in chemical bonds, is regarded as a type of potential energy.

Q11. How do plants store chemical energy?

Answer. Plants need solar energy to produce sugar from carbon dioxide to water. Sugar, water and carbon dioxide stay together by chemical bonds that hold the chemicals together. Plants use solar energy to put the hydrogen, the carbon and the oxygen atoms as a whole in the form of sugar. Thus, by the process of photosynthesis chemical energy is stored in plants.

Q12. Why is rusting of iron a chemical change?

Answer. Rust formation occurs when the iron is exposed to air and moisture. Rust is nothing more than iron oxide, a byproduct of the reaction. The colour of the iron's surface also changes. As a result, iron rusting is a chemical change.

Q13. How chemical energy is stored in food?

Answer. Food stores chemical energy in the form of molecular bonds. A chemical reaction occurs when the bonds between the atoms in food loosen or break, resulting in the formation of new compounds.

This reaction's energy keeps us warm, allows us to move, and allows us to grow. Different foods contain varying amounts of energy.

Q14. How is chemical energy used?

Answer. Some examples of uses of chemical energy are as follows:

- Combustion of coal converts chemical energy into light and heat.
- Combustion of wood converts chemical energy into light and heat.
- Petroleum can be burned to produce light and heat, or it can be converted into another form of chemical energy, such as gasoline.
- Chemical batteries: These batteries store chemical energy to be converted into electricity.
- Combustion reaction converts chemical energy into light and heat in biomass.
- Combustion of natural gas converts chemical energy into light and heat.
- Food is digested in order to convert chemical energy into other forms of energy that cells can use.
- Photosynthesis is the process by which solar energy is converted into chemical energy.
- Cellular respiration is a series of reactions that convert the chemical energy in glucose into ATP, which our bodies can use.

Q15. Explain the energy conversion by a battery.

Answer. A battery is a device that converts chemical energy to electrical energy. A battery's chemical reactions involve the flow of electrons from one material (electrode) to another via an external circuit. Electron flow generates an electric current that can be used to perform work.

Practise Questions on Chemical Energy

Q1. Solar energy is converted into chemical energy in ____.

- a.) Ribosomes
- b.) Mitochondria
- c.) Chloroplast
- d.) Peroxisomes

Correct Answer– (c.) Chloroplast

Q2. Which of the following best describes the form in which chemical energy exists?

- a.) The heat that is generated when friction occurs
- b.) The chemical composition of a substance
- c.) The chemical bonds that hold atoms together in chemicals
- d.) The random movement of particles in a system

Correct Answer– (c.) The chemical bonds that hold atoms together in chemicals

Q3. Fill in the blank.

Green plants convert ___ energy into chemical energy.

Answer. Green plants convert light energy into chemical energy.

This process is known as photosynthesis. It is a process by which green plants prepare their own food using sunlight, carbon dioxide and water. The food that is prepared is a new substance (chemical compound).

Q4. How burning of coal is an example of chemical energy?

Answer. Coal is an excellent example of chemical energy, particularly when used to generate electricity.

Coal from a reservoir is fed into a boiler and burned at extremely high temperatures. As a result, chemical energy in the coal is released in the form of thermal energy. The thermal energy is then used to heat water in tanks, resulting in steam.

The steam is then directed through tubes attached to spinning shafts. The shafts are linked to a generator, which uses the process to generate electricity.

Q5. How does chemical energy form?

Answer. Chemical energy is a type of potential energy stored in atoms and molecules chemical bonds. When these bonds are broken or formed, chemical energy is released or absorbed. Bond breaking and formation are referred to as chemical reactions, and they result in the formation of a new substance.