


Egypt-Japan University of Science and Technology		
Faculty of Engineering and Applied Sciences	Subject: Chemistry	 الجامعة المصرية اليابانية للعلوم والتكنولوجيا <b>E-JUST</b> Egypt-Japan University of Science and Technology エジプト日本科学技術大学
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Student Name:	Student ID:	

**Choose the correct answer:**

**Question ① Which metal reacts most vigorously with water at 25 °C?**

- A. Na
- B. Mg
- C. Cl
- D. Ca
- E. Hg

**Question ② Which of the following molecules has the shortest carbon-carbon bond?**

- A. CH<sub>3</sub>CH<sub>3</sub>
- B. CH<sub>2</sub>CH<sub>2</sub>
- C. C<sub>2</sub>H<sub>2</sub>
- D. CH<sub>3</sub>COOH
- E. CH<sub>3</sub>CH<sub>2</sub>OH

**Question ③ Which of the following is an example of chemical change?**

- A. Boiling water.
- B. Dissolving alcohol in water.
- C. Heating copper metal.
- D. Compressing a gas.
- E. Rusting of iron.

**Question ④ Which of the following elements normally exist as monoatomic molecules?**

- A. Cl
- B. H
- C. O
- D. N
- E. He

**Question ⑤** What is the chemical formula of sodium carbonate?

- A.  $\text{NaCO}_3$
- B.  $\text{Na}(\text{CO}_3)_2$
- C.  $\text{Na}_2\text{CO}_3$
- D.  $\text{NaHCO}_3$
- E.  $\text{NaH}_2\text{CO}_3$

**Question ⑥** How many grams of NaOH are needed to make 100 ml of a 5% solution?

- A. 2 g
- B. 5 g
- C. 20 g
- D. 40 g
- E. 95 g

**Question ⑦** A solution of silver nitrate is mixed with a solution of potassium fluoride. If a precipitate forms, the precipitate is .....

- A. silver fluoride.
- B. potassium chloride.
- C. potassium fluorite.
- D. nitric fluoride.
- E. none of the above.

**Question ⑧** When sulfur dioxide is bubbled through water, the solution will contain.....

- A. sulfurous acid.
- B. sulfuric acid.
- C. hydrogen sulphide.
- D. anhydrous sulfuric acid.
- E. none of the above.

**Question ⑨** Regarding the following reaction:



the concentration of ammonia may be increased by.....

- A. reducing the amount of nitrogen.
- B. increasing the reaction temperature.
- C. reducing the amount of hydrogen.
- D. increasing the feed pressure.
- E. none of the above.

**Question ⑩** To determine the percentage by mass of chlorine in a solid mixture of salts, what action should be performed first?

- A. Weigh the salt mixture.
- B. Use an oxidizing agent to liberate the chlorine.
- C. Add aqueous silver nitrate to the salt mixture.
- D. Dissolve the salt mixture in water.
- E. Use a reducing agent to liberate the chlorine.

**Question ⑪** The speed of a chemical reaction.....

- A. is constant no matter what the reaction temperature is.
- B. is independent of the amount of contact surface of a solid involved.
- C. between gases should be extremely rapid in all cases because the average kinetic energy of the molecules is great.
- D. between ions in aqueous solution is extremely rapid because there are no bonds that need to be broken.
- E. varies inversely with the reaction temperature.

**Question ⑫** Which statement about catalysts is incorrect?

- A. A catalyst speeds up both the forward and reverse reactions.
- B. A catalyst is not consumed by a reaction, though it may be temporarily changed.
- C. Catalysts, reactants, and products can be either a homogeneous or heterogeneous system.
- D. A catalyst decreases the enthalpy change of the reaction that it catalyzes.
- E. A catalyst changes the reaction mechanism of the reaction that it catalyzes.

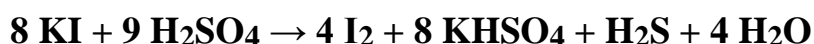
**Question 13** Which of the following is NOT classified as a biopolymer?

- A. Collagen
- B. Glucose
- C. Cellulose
- D. Chitin
- E. None of the above

**Question 14** In exothermic reactions, .....

- A. heat moves to the system from the surrounding.
- B. heat moves from the system to the surrounding.
- C. heat does not move from or to the system.
- D. heat moves from and to the system at the same time.
- E. none of the above.

**Question 15** In the reaction below, which element is reduced?



- A. Potassium
- B. Iodine
- C. Hydrogen
- D. Sulfur
- E. Oxygen

**Question 16** If 100 mL of 5 mol/L NaOH was diluted to 200 mL by the addition of water. What is the molar concentration of NaOH after dilution?

- A. 2.5 mol/l
- B. 1.5 mol/l
- C. 3.0 mol/l
- D. 2.0 mol/l
- E. 4.0 mol/l

**Question ⑰** Compared to pure water, a 0.1 mol/l solution of sodium chloride has .....

- A. a higher pH.
- B. a lower electrical conductivity.
- C. a lower boiling point.
- D. a lower freezing point.
- E. a higher vapor pressure.

**Question ⑱** When the Kelvin temperature of a fixed amount of an ideal gas is doubled and the pressure is doubled, what is the combined effect on the volume of the gas?

- A. The volume remains constant.
- B. The volume increases by a factor of two.
- C. The volume increases by a factor of four.
- D. The volume decreases by a factor of two.
- E. The volume decreases by a factor of four.

**Question ⑲** Which of the following substances has been widely used to disinfect drinking water?

- A. NaF
- B. O<sub>2</sub>
- C. Cl<sub>2</sub>
- D. CO<sub>2</sub>
- E. HCl

**Question ⑳** If 5.0 mole of both hydrochloric acid and sodium sulfide are mixed and reacts according to the equation below, how many moles of hydrogen sulfide (H<sub>2</sub>S) are produced?



- A. 1 mole.
- B. 1.25 mole.
- C. 2.5 moles.
- D. 3 moles.
- E. 5 moles.

*With Best Wishes*