SCIENCE

GRADE 10

MULTIPLE CHOICE REVIEW

CHEMISTRY

1. 0.04 g of $CaCl_2$ is transferred to a 500 mL volumetric flask and water is added until the 500 mL line. Determine the concentration of the solution in ppm.

A) 0.08 ppm

B) 8 ppm

C) 80 ppm

D) 800 ppm

2. The chlorine ion (Cl^-) concentration in a swimming pool is recommended to be between 1.5 ppm and 3 ppm. Which of the following pools fall in the recommended range for chlorine concentration?

A) Pool A: Concentration of chlorine is 0.0018 g/L

B) Pool B: Concentration of chlorine is 0.0018 % (m/V)

C) Pool C: Concentration of chlorine is 0.018 g/L

D) Pool D: Concentration of chlorine is 0.018 % (m/V)

3. Substance A was found in a laboratory and various tests were performed on it in order to classify it. The following was observed: substance A had no effect on litmus paper, was able to conduct electricity and turned cobalt chloride paper pink. This substance can be classified as a(n):

A) Acid

B) Base

C) Electrolyte

D) Non-electrolyte

4. A solution has a pH that is greater than 7 and less than 14. What is the nature of the solution?

A) Acidic

B) Basic

C) Neutral

D) Salty

5. Oxygen forms an O^{2-} ion. Which of the following statements is correct?

A) The oxygen atom loses 2 protons to form its ion.

B) The oxygen atom loses 2 electrons to form its ion.

C) The oxygen atom gains 2 electrons to form its ion.

D) Oxygen neither gains nor loses electrons when forming its ion.

6. Which of the following is NOT an example of rapid combustion?

A) A log fire

B) A candle burning

C) Digestion

D) A gas stove element burning

C

7. Which of the following combinations correctly represents the process of photosynthesis?

a) Carbon Dioxide + Water + solar energy → Glucose + Oxygen

b) Carbon Dioxide + Water → Glucose + Oxygen + solar energy

c) Glucose + Oxygen → Carbon Dioxide + Water + energy

d) Glucose + Oxygen + energy → Carbon Dioxide + Water

A

8. Which of the following combinations correctly represents the process of cellular respiration?

A) Carbon Dioxide + Water + solar energy → Glucose + Oxygen

B) Carbon Dioxide + Water → Glucose + Oxygen + solar energy

C) Glucose + Oxygen → Carbon Dioxide + Water + energy

D) Glucose + Oxygen + energy → Carbon Dioxide + Water

C

9. Wasp stings are alkaline. Which substance would help relieve this injury?

A) Vinegar

B) Toothpaste

C) Tap water

D) Ammonia based window cleaner

A

10. Which equation below correctly represents the neutralization reaction of hydrochloric acid (HCl) and potassium hydroxide (KOH)?

A) $HCl + KOH \rightarrow Cl + H_2O$

B) $HCl + KOH \rightarrow KO + H_2Cl$

C) $HCl + KOH \rightarrow KH + ClOH$

D) $HCl + KOH \rightarrow KCl + H_2O$

D

11. What mass of ammonia (NH_3) is produced when 6 g of hydrogen gas (H_2) combines with 28 g of nitrogen gas (N_2)?

$$N_2 + 3\ H_2 \rightarrow 2\ NH_3$$

A) 6 g

B) 23 g

C) 34 g

D) 46 g

12. When an acid and a base react together, what are the products?

A) Acid and Salt

B) Salt and Base

C) Base and Water

D) Salt and Water

13. During a chemical reaction, one molecule of nitrogen gas (N_2) and three molecules of hydrogen gas (H_2) react to produce 2 molecules of ammonia (NH_3). The balanced equation for this reaction is:

$$N_2 + 3\ H_2 \rightarrow 2\ NH_3$$

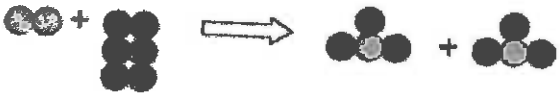
Which of the models below correctly represents the above reaction?

The following symbols are used:

Nitrogen  Hydrogen 

A) 

B) 

C) 

D) 

14. Which of the following equations is balanced?

A) $2\ Fe_2O_3 + 3\ C \rightarrow 3\ CO_2 + 2\ Fe$

B) $CH_4 + O_2 \rightarrow CO_2 + 2\ H_2O$

C) $Cu + 4\ HNO_3 \rightarrow Cu(NO_3)_2 + 4\ NO_2 + 2\ H_2O$

D) $4\ NH_3 + 3\ O_2 \rightarrow 2\ N_2 + 6\ H_2O$

15. The following model represents a balanced equation for a reaction involving a piece of magnesium metal and hydrochloric acid.

Symbols:

Magnesium ● **Hydrogen** ● **Chlorine** ○

Which of the following equations correctly represents this reaction?

A) $Mg + HCl \rightarrow H_2 + MgCl_2$

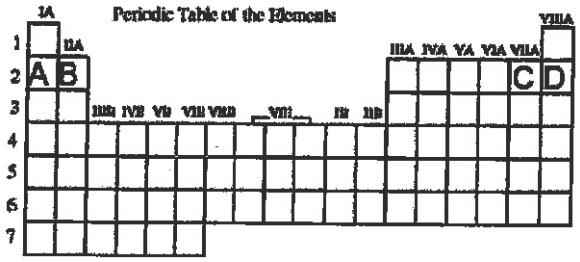
B) $Mg + H_2Cl_2 \rightarrow H_2 + MgCl_2$

C) $Mg + 2\,HCl \rightarrow 2\,H_2 + MgCl_2$

D) $Mg + H_2Cl_2 \rightarrow 2\,H_2 + 2\,MgCl_2$

16. An element is examined in the laboratory. Despite several attempts it doesn't seem to react with any other substance. It is a gas at room temperature.

Which letter best represents where this element would be located in the periodic table?



17. Which element below has the following properties?

- Has electrons in 2 electron shells
- Is completely non-reactive or is inactive

A) Li B) F C) He D)Ne

18. Which of the following correctly matches the element with the number of valence electrons it possesses?

A) Helium (2), Carbon (4), Magnesium (2), Potassium (1)

B) Helium (8), Carbon (4), Magnesium (2), Potassium (1)

C) Helium (1), Carbon (2), Magnesium (3), Potassium (4)

D) Helium (2), Carbon (2), Magnesium (3), Potassium (4)

questions

9. Which of the following statements correctly describes the fluorine atom using the Rutherford–Bohr model?

A) An atom with 9 protons in the nucleus, with 2 electrons on the first shell and 7 on the second shell.

B) An atom with 9 protons in the nucleus, with 8 electrons on the first shell and 11 electrons on the second shell and 9 electrons on the third shell.

C) An atom with 19 protons in the nucleus, with 8 electrons on the first shell and 11 on the second shell.

D) An atom with 2 protons, 1 electron on the first shell and 1 electron on the second shell.

10. What do protons and electrons have in common?

A) They both carry an electrical charge.

B) Neither of them carry an electrical charge.

C) They are both situated outside the nucleus of an atom.

D) They are both situated inside the nucleus of an atom.

11. Which of the following are positively charged?

1. The proton
2. The electron
3. The atom
4. The nucleus

A) 1 and 2 B) 2 and 3 C) 3 and 4 D) 1 and 4

12. Which of the following statements *correctly* describe a difference between electrons and protons?

A) Protons are found outside the nucleus; electrons are found inside the nucleus.

B) Protons are positively charged; electrons are negatively charged.

C) Protons have no electrical charge; electrons have a positive charge.

D) Protons are found inside the nucleus; electrons are found inside the neutrons