

SNC2D Chemistry Unit Test Practice

Multiple Choice (1 mark each):

- Which of the following will form positive ions?
(A) the alkali metals (B) the halogens (C) the noble gases (D) all of the above
- Which of the following compounds is an ionic compound?
(A) CO_2 (B) CaO (C) CH_4 (D) all of the above
- Which of the following compounds is a molecular compound?
(A) PCl_3 (B) PbCl_2 (B) $\text{Pb}(\text{ClO}_3)_2$ (D) all of the above
- The Roman numeral in the name iron (III) nitride indicates:
(A) the number of iron atoms in the compound
(B) the number of nitrogen atoms in the compound
(C) the valence of the iron
(D) the valence of the nitrogen
- The bond in a molecule of Cl_2 could be described as:
(A) covalent (B) ionic (C) both (A) and (B) (D) neither (A) nor (B)
- If a strip of magnesium reacts with oxygen gas, the mass of the resulting magnesiumoxide will be _____ the mass of the magnesium.
(A) less than (B) more than
(C) the same as (D) It cannot be determined.
- In an equation representing a chemical reaction, the reactants are always written:
(A) to the left of the arrow (B) to the right of the arrow
(C) above the arrow (D) below the arrow
- Which of the following is an indication a chemical reaction has occurred?
(A) the formation of a precipitate (B) a colour change
(C) a temperature change (D) all of the above
- If AlBr_3 reacts with Cl_2 , the products of the reaction will be:
(A) AlCl_2 and Br_3 (B) AlCl_3 and Br_2 (C) Al and Br_3Cl_2 (D) Al and BrCl
- The reaction in Question 9 could be described as a _____ reaction.
(A) decomposition (B) double displacement
(C) single displacement (D) synthesis

11. The neutralization of hydrochloric acid by potassium hydroxide would be an example of a _____ reaction:
- (A) decomposition (B) double displacement
(C) single displacement (D) synthesis
12. Which of the following is a product of the reaction in Question 11?
- (A) potassium chlorate (B) potassium chloride
(C) potassium hydride (D) potassium oxide
13. The pH of the products of the reaction in Question 11 will be:
- (A) 0 (B) 1 (C) 5 (D) 7
14. The decomposition of sodium chloride will form:
- (A) Na and Cl (B) Na and Cl₂ (C) Na₂ and Cl (D) Na₂ and Cl₂
15. Which of the following is a synthesis reaction?
- (A) the formation of ice crystals on a window
(B) the electrolysis of water
(C) the rusting of an iron sheet
(D) all of the above
16. When balancing a chemical equation, you can change:
- (A) the subscripts that indicate the number of atoms in the molecules
(B) the coefficients that indicate the number of molecules
(C) both (A) and (B)
(D) neither (A) nor (B)
17. Which of the following is a correct statement of the Law of Conservation of Mass? In a chemical reaction:
- (A) the number of atoms created must be equal to the number destroyed
(B) the number of molecules created must be equal to the number destroyed
(C) atoms cannot be created or destroyed, only rearranged
(D) molecules cannot be created or destroyed, only rearranged
18. Bases release _____ ions in solution.
- (A) hydrogen (B) hydrocarbon (C) hydroxide (D) Bases are not soluble in water.
19. Which of the following compounds is an acid when in solution?
- (A) NH₃ (B) NH₄OH (C) HNO₃ (D) Na₂O
20. If an acid dissolves magnesium metal, what is the gas released?
- (A) hydrogen (B) oxygen (C) carbon dioxide (D) water vapour

21. Which of the following household chemicals is an acid?
(A) bleach (B) drain cleaner
(C) vinegar (D) all of the above
22. Which of the following could be used to determine whether or not a solution is an acid?
(A) red litmus paper (B) blue litmus paper
(C) both (A) and (B) (D) neither (A) nor (B)
23. Which of the following could be used to neutralize an acidic solution?
(A) NaCl (B) NaHCO₃ (C) NaOH (D) both (B) and (C)
24. A solution with a pH of 1 is:
(A) a strong acid (B) a weak acid
(C) a strong base (D) a weak base
30. Rainfall is naturally:
(A) acidic (B) basic (C) neutral (D) any of the above

Chemical Names and Formulas (1 mark each):

Write the chemical name for each of the following:

CCl₄ _____

HNO_{3(aq)} _____

K₂SO₄ _____

FeCl₃ _____

N₂O _____

HCl_(aq) _____

Li₃PO₄ _____

PbO₂ _____

NaOH _____

Ag₂S _____

Write the chemical formula for each of the following:

diphosphorus pentasulphide _____

calcium phosphide _____

copper (I) oxide _____

ammonium bicarbonate _____

hydrobromic acid _____

nickel (II) carbonate _____

potassium sulphate _____

lead (II) nitrate _____

aluminum hydroxide _____

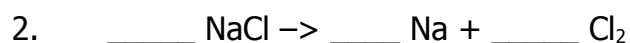
oxygen difluoride _____

Chemical Equations (2 marks each):

Balance each of the following equations (1 mark) and identify the type of reaction (1 mark):



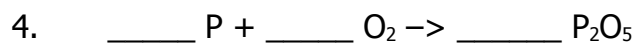
Type of reaction: _____



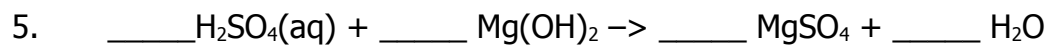
Type of reaction: _____



Type of reaction: _____



Type of reaction: _____



Type of reaction: _____

6. Write the word equations to represent the reactions in Questions 3 and 5:

Question 3:

Question 5:

Predict the products of each of the following reactions:

7. calcium bromide + barium nitrate \rightarrow

_____ + _____

8. potassium + water \rightarrow

_____ + _____

9. aluminum iodide + bromine \rightarrow

_____ + _____

10. water \rightarrow _____ + _____

Short Answer (2 marks each):

1. Explain how the subscripts are determined in the formula Ca_3N_2 .

2. Explain the differences between an ionic and a covalent bond.

3. Explain why equations representing chemical reactions contain an arrow and not an equals sign. How is the arrow read?

4. The balancing of chemical equations relates to a physical law. Identify the law and explain how balancing relates to the law.

5. Explain how it is possible to test for the presence of lead (II) ions in a solution.

6. If phenolphthalein is added to a solution of calcium hydroxide, what is the resulting colour of the solution? What does the colour indicate?

7. Explain why the alkaline earth metals are referred to as "alkaline."

The Final Question (1 mark):

What was your favourite part of this unit? Explain what principle of chemistry it illustrated.