

SNC2D Unit Test – Chemistry

SNC2D Unit 4 Test (80 Marks Total)

Name: _____

Signature: _____

Marks obtained:

Percentage:

Answers:

Section 1 True/False

Question	1	2	3	4	5	6	7	8	9	10
Answer										
Question	11	12	13	14	15	16	17	18	19	20
Answer										
Question	21	22	23	24	25	26	27	28	29	30
Answer										

****NOTE: ANSWER MULTIPLE CHOICE QUESTIONS IN THE TABLE ABOVE****

KNOWLEDGE

30 Marks

Part (A) Multiple Choice

30 Marks

****NOTE: ANSWER MULTIPLE CHOICE QUESTIONS IN THE TABLE ON PAGE 1****

1. Compounds formed by a metal giving an electron to a non-metal are:

(a) covalent	(c) ionic
(b) solutions	(d) elements

2. How many valence electrons are found in a neutral atom of Na?

(a) one	(c) six
(b) three	(d) two

3. When naming a compound

(a) the non-metal is always named first.	(c) the metal is always named second.
(b) the metal gets an -ide ending.	(d) the non-metal gets an -ide ending.

4. A polyatomic ion

(a) is made of more than one element.	(c) only contains metals.
(b) has no charge.	(d) always has a negative valence.

5. In a covalent compound, how do atoms complete their outer electron shells?

(a) transferring electrons	(c) creating electrons
(b) sharing electrons	(d) destroying electrons

6. Which one of the following has more than one possible valence charge?

(a) sodium	(c) iron
(b) magnesium	(d) lithium

7. Why does burning a log seem to disobey the Law of Conservation of Mass?

(a) The log remains the same.	(c) The log actually gains mass when burned.
(b) The gases escape and can't be measured.	(d) The log gains mass since gases attach themselves to the log.

8. Which of the following is not an acid?

(a) HCl	(c) HF
(b) NaCl	(d) H ₂ SO ₄

9. What gas is given off when zinc reacts with hydrochloric acid?

(a) hydrogen gas	(c) oxygen gas
(b) chlorine gas	(d) zinc gas

10. What is the most common polyatomic ion found in bases?

(a) SO_4^{-2}	(c) $\text{Cr}_2\text{O}_7^{-2}$
(b) CO_3^{-2}	(d) OH^{-1}

11. Sodium and hydrochloric acid react to produce a salt and hydrogen gas.
 $\text{Na} + \text{HCL} \rightarrow \text{NaCl} + \text{H}_2$
 What kind of reaction is this?

(a) decomposition	(c) double displacement
(b) single displacement	(d) synthesis

12. Neutralization reactions occur between
 - (a) a non-metallic oxide and a basic oxide.
 - (b) an acid and a base.
 - (c) a salt and water.
 - (d) an acid and chocolate milk.

13. Neutralization reactions are a special type of:

(a) synthesis reaction	(c) single displacement reaction
(b) double displacement reaction	(d) combustion reaction

14. Which is the correct formula for iron (II) chloride?
 (a) Fe_2Cl_2 (c) FeCl
 (b) Fe_2Cl (d) FeCl_2
15. Heating sodium bicarbonate, to produce water, CO_2 , and sodium carbonate
 $\text{NaHCO}_3 \rightarrow \text{NaCO}_3 + \text{H}_2\text{O} + \text{CO}_2$ is a:
 (a) decomposition reaction
 (b) synthesis reaction
 (c) single displacement reaction
 (d) double displacement reaction
16. Which of the following are named using Roman numerals?
 (a) Compounds containing metals with multiple valences.
 (b) Compounds containing two non-metals.
 (c) Compounds containing a metal and a polyatomic ion
 (d) Compounds containing two polyatomic ions.
17. Which equation is not balanced?
 (a) $2\text{C}_2\text{H}_6 + 7\text{O}_2 \rightarrow 4\text{CO}_2 + 6\text{H}_2\text{O}$
 (b) $\text{C}_3\text{H}_8 + 5\text{O}_2 \rightarrow 3\text{CO}_2 + 4\text{H}_2\text{O}$
 (c) $\text{C}_6\text{H}_{18} + 10\text{O}_2 \rightarrow 5\text{CO}_2 + 9\text{H}_2\text{O} + 2\text{CO} + \text{C}$
 (d) $\text{C}_5\text{H}_{12} + 8\text{O}_2 \rightarrow 5\text{CO}_2 + 6\text{H}_2\text{O}$
18. Copper (II) oxide is produced when copper reacts with oxygen by heating it in a flame. The reaction is $\text{Cu} + \text{O}_2 \rightarrow \text{CuO}$. What type of reaction is this?
 (a) synthesis (c) single displacement
 (b) decomposition (d) double displacement
19. Which one of the following describes a base?
 (a) It turns blue litmus paper red.
 (b) It dissolves in water to produce hydroxide ions.
 (c) It dissolves in water to produce hydrogen ions.
 (d) It reacts with carbonates to produce carbon dioxide gas.
20. Which type of bond creates molecules?
 (a) ionic (c) james
 (b) covalent (d) basic

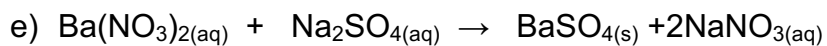
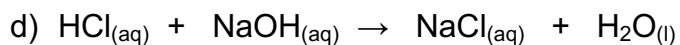
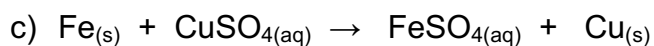
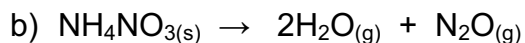
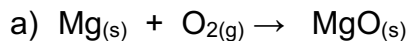
21. A chemical that shows a solution to be acidic or basic is a(n):
 (a) acid (c) base
 (b) indicator (d) ionic compound
22. An ion composed of more than one atom is known as a(n):
 (a) cation (c) polyatomic ion
 (b) anion (d) What is an ion?
23. A double displacement reaction occurs when
 (a) one element is swapped between ions.
 (b) two elements are swapped between ions.
 (c) a physical change occurs.
 (d) two reactions are needed to make something.
24. Prefixes are only used for compounds containing:
 (a) a metal and non-metal (c) a non-metal and a metal
 (b) a metal and metal (d) a non-metal and non-metal
25. The products of all neutralization reactions are:
 (a) two elements (c) water and a salt
 (b) one compound and one element (d) water and NaCl
26. What type of solution has a high concentration of OH^{-1} ions and turns litmus paper blue?
 (a) H^{+} ions (c) base
 (b) silver nitrate (d) acid
27. When forming ionic compounds, which of the following is true about the overall charge?
 (a) it must be 0 (c) it must be below 1
 (b) it must be above 1 (d) none of the above
28. What type of reaction is occurring in this reaction?
 $\text{NaCl} \rightarrow \text{Na} + \text{Cl}_2$
 (a) Combustion (c) Decomposition
 (b) Synthesis (d) single displacement
29. Which is true of the following equation:
 $\text{Na} + \text{Cl}_2 \rightarrow \text{NaCl}$
 (a) Na and Cl are products (c) Na and NaCl are products
 (b) bNaCl is a reactant (d) Na and Cl are reactants
30. The pH of four liquids was measured. Which one would be considered neutral?
 (a) 3 (c) 9
 (b) 8 (d) 7

COMMUNICATION

15 Marks

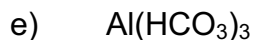
Short Answers

31. State whether each of the following is either: Synthesis, Decomposition, Single Displacement, or Double Displacement. 5 Marks



32. Correctly name the following compounds.

5 Marks



33. Write the correct formula for the following compounds.

5 Marks

- a) Sodium sulphate
- b) Copper (II) hydroxide
- c) Tin (II) oxide
- d) Silver nitrate
- e) Carbon tetrachloride

APPLICATION

15 Marks

34. Fill in the following chart

5 Marks

	Acids	Bases
Important Ion Produced When Dissolved		
pH range		
Corrosive? (y/n)		
React with metals to form H_2 ? (y/n)		
Litmus Paper (red / blue)		

35. 4 g of hydrogen gas was reacted with 16 g of oxygen gas. This reaction produced water.

5 Marks

- a) Write the word equation for this reaction. 1 Mark
- b) Write a balanced chemical equation for this reaction. 2 Marks
- c) What would be the expected mass of water produced? 1 Mark
- d) What physical law did you use to determine the mass of water produced? 1 Mark

36. You react 63.5 g of copper metal with a solution containing 339.8 g of silver nitrate. The products of this reaction are silver metal and copper (II) nitrate, which remains in solution. **5 Marks**

- a) Write a word equation for this reaction. **1 Marks**
- b) Write a balanced chemical equation for this reaction. **3 Marks**
- c) If 223 g of copper (II) nitrate is produced, how much silver metal would you expect to be produced? **1 Mark**

INQUIRY

20 Marks

37. Balance the following equations (if required):

12 Marks

- a) $\text{MgCl}_2 + \text{Ca(OH)}_2 \rightarrow \text{Mg(OH)}_2 + \text{CaCl}_2$
- b) $\text{CH}_4 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$
- c) $\text{Na} + \text{B}_2\text{S}_3 \rightarrow \text{Na}_2\text{S} + \text{B}$
- d) $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$
- e) $\text{Ag}_2\text{CO}_{3(\text{s})} \rightarrow \text{Ag}_2\text{O}_{(\text{s})} + \text{CO}_{2(\text{g})}$
- f) $\text{NaHCO}_3 \rightarrow \text{Na}_2\text{CO}_3 + \text{H}_2\text{O} + \text{CO}_2$

38. Write the word equations below and then balance:

8 Marks

- a) Sodium phosphate and calcium chloride react to form calcium phosphate and sodium chloride. **4 Marks**
- b) Zinc and lead (III) nitrate to form zinc nitrate and lead. **4 Marks**

The Periodic Table of the Elements

1 H Hydrogen 1.00794																	2 He Helium 4.003
3 Li Lithium 6.941	4 Be Beryllium 9.012182											5 B Boron 10.811	6 C Carbon 12.0107	7 N Nitrogen 14.00674	8 O Oxygen 15.9994	9 F Fluorine 18.9984032	10 Ne Neon 20.1797
11 Na Sodium 22.989770	12 Mg Magnesium 24.3050											13 Al Aluminum 26.981538	14 Si Silicon 28.0855	15 P Phosphorus 30.973761	16 S Sulfur 32.066	17 Cl Chlorine 35.4527	18 Ar Argon 39.948
19 K Potassium 39.0983	20 Ca Calcium 40.078	21 Sc Scandium 44.955910	22 Ti Titanium 47.867	23 V Vanadium 50.9415	24 Cr Chromium 51.9961	25 Mn Manganese 54.938049	26 Fe Iron 55.845	27 Co Cobalt 58.933200	28 Ni Nickel 58.6934	29 Cu Copper 63.546	30 Zn Zinc 65.39	31 Ga Gallium 69.723	32 Ge Germanium 72.61	33 As Arsenic 74.92160	34 Se Selenium 78.96	35 Br Bromine 79.904	36 Kr Krypton 83.80
37 Rb Rubidium 85.4678	38 Sr Strontium 87.62	39 Y Yttrium 88.90585	40 Zr Zirconium 91.224	41 Nb Niobium 92.90638	42 Mo Molybdenum 95.94	43 Tc Technetium (98)	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.90550	46 Pd Palladium 106.42	47 Ag Silver 107.8682	48 Cd Cadmium 112.411	49 In Indium 114.818	50 Sn Tin 118.710	51 Sb Antimony 121.760	52 Te Tellurium 127.60	53 I Iodine 126.90447	54 Xe Xenon 131.29
55 Cs Cesium 132.90545	56 Ba Barium 137.327	57 La Lanthanum 138.9055	72 Hf Hafnium 178.49	73 Ta Tantalum 180.9479	74 W Tungsten 183.84	75 Re Rhenium 186.207	76 Os Osmium 190.23	77 Ir Iridium 192.217	78 Pt Platinum 195.078	79 Au Gold 196.96655	80 Hg Mercury 200.59	81 Tl Thallium 204.3833	82 Pb Lead 207.2	83 Bi Bismuth 208.98038	84 Po Polonium (209)	85 At Astatine (210)	86 Rn Radon (222)
87 Fr Francium (223)	88 Ra Radium (226)	89 Ac Actinium (227)	104 Rf Rutherfordium (261)	105 Db Dubnium (262)	106 Sg Seaborgium (263)	107 Bh Bohrium (262)	108 Hs Hassium (265)	109 Mt Meitnerium (266)	110 (269)	111 (272)	112 (277)	113	114				

58 Ce Cerium 140.116	59 Pr Praseodymium 140.90765	60 Nd Neodymium 144.24	61 Pm Promethium (145)	62 Sm Samarium 150.36	63 Eu Europium 151.964	64 Gd Gadolinium 157.25	65 Tb Terbium 158.92534	66 Dy Dysprosium 162.50	67 Ho Holmium 164.93032	68 Er Erbium 167.26	69 Tm Thulium 168.93421	70 Yb Ytterbium 173.04	71 Lu Lutetium 174.967
90 Th Thorium 232.0381	91 Pa Protactinium 231.03588	92 U Uranium 238.0289	93 Np Neptunium (237)	94 Pu Plutonium (244)	95 Am Americium (243)	96 Cm Curium (247)	97 Bk Berkelium (247)	98 Cf Californium (251)	99 Es Einsteinium (252)	100 Fm Fermium (257)	101 Md Mendelevium (258)	102 No Nobelium (259)	103 Lr Lawrencium (262)