



Pool Canvas

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Name Chapter 2: Atoms, Molecules, and Ions
Description Diploma exported pool
Instructions

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Question 1  **Multiple Choice** **1 points**

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Question According to the law of definite proportions,

- Answer**
- A. if the same two elements form two different compounds, they do so in the same ratio.
 - B. it is not possible for the same two elements to form more than one compound.
 - ✔ C. the ratio of the masses of the elements in a compound is always the same.
 - D. the total mass after a chemical change is the same as before the change.

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Question 2  **Multiple Choice** **1 points**

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Question Which of the following pairs of compounds can be used to illustrate the law of multiple proportions?

- Answer**
- A. NH₃ and NBr₃
 - B. ZnO and ZnCl₂
 - C. H₂O and HBr
 - ✔ D. NO and NO₂
 - E. CH₄ and CO₂

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Question 3  **Multiple Choice** **1 points**

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Question How many of the following did Dalton *not* discuss in his atomic theory?

- I. isotopes
- II. ions
- III. protons
- IV. neutrons
- V. electrons

- Answer**
- A. 1
 - B. 2
 - C. 3
 - D. 4
 - ✔ E. 5

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Question 4  **Multiple Choice** **1 points**

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Question When 2.0 L of oxygen gas (O₂) reacts with 1.0 L of nitrogen gas (N₂), 2.0 L of gaseous product is formed. All volumes of gases are measured at the same temperature and pressure. What is the formula of the product?

- Answer**
- A. N₂O
 - ✔ B. NO₂
 - C. NO₄
 - D. NO
 - E. N₂O₃

 [Add Question Here](#)

Question 5  **Multiple Choice** **1 points**

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Question Which one of the following statements about atomic structure is false?

- Answer**
- A. The electrons occupy a very large volume compared to the nucleus.
 - B. Almost all of the mass of the atom is concentrated in the nucleus.
 - C. The protons and neutrons in the nucleus are very tightly packed.
 - ✔ D. The number of protons and the number of neutrons are always the same in the neutral atom.

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Question 6  **Multiple Choice** **1 points**

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Question Which of the experiments listed below did *not* provide the information stated about the nature of the atom?

- Answer** ✔ A. The Rutherford experiment proved that the Thomson "plum pudding" model of the atom was essentially correct.
- B. The Rutherford experiment determined the charge on the nucleus.
 - C. Millikan's oil-drop experiment showed that the charge on any particle was a simple multiple of the charge on the electron.
 - D. The cathode-ray tube proved that electrons have a negative charge.

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Question 7  **Multiple Choice** **1 points**

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Question Which of the following atomic symbols is incorrect?

- Answer**
- A. $^{19}_9\text{F}$
 - B. $^{34}_{17}\text{Cl}$
 - C. $^{31}_{15}\text{P}$
 - D. $^{39}_{19}\text{K}$
 - ✓ E. $^{14}_6\text{N}$

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Question 8

Multiple Choice

1 points

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Question The element rhenium (Re) exists as two stable isotopes and 18 unstable isotopes. Rhenium-185 has in its nucleus

- Answer**
- A. 75 protons, 75 neutrons.
 - B. 75 protons, 130 neutrons.
 - C. 130 protons, 75 neutrons.
 - ✓ D. 75 protons, 110 neutrons.
 - E. not enough information is given.

 [Add Question Here](#)

Question 9

Multiple Choice

1 points

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Question Which of the following statements is(are) true?

- I. O and F have the same number of neutrons.
- II. C and N are isotopes of each other because their mass numbers are the same.
- III. O^{2-} has the same number of electrons as Ne.

- Answer**
- A. I only
 - B. II only
 - ✓ C. III only
 - D. I and II only
 - E. I and III only

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Question 10

Multiple Choice

1 points

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Question Which among the following represent a set of isotopes? Atomic nuclei containing

- I. 20 protons and 20 neutrons.
- II. 21 protons and 19 neutrons.
- III. 22 neutrons and 18 protons.
- IV. 20 protons and 22 neutrons.
- V. 21 protons and 20 neutrons.

- Answer**
- A. I, II, III
 - B. III, IV
 - C. I, V
 - ✓ D. I, IV and II, V
 - E. No isotopes are indicated.

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Question 11

Multiple Choice

1 points

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Question How many protons, neutrons, and electrons does the atom ^{39}K have?

- Answer**
- A. 19 protons, 19 neutrons, 39 electrons
 - B. 20 protons, 20 neutrons, 19 electrons
 - C. 19 protons, 19 neutrons, 19 electrons
 - D. 20 protons, 19 neutrons, 20 electrons
 - ✓ E. 19 protons, 20 neutrons, 19 electrons

 [Add Question Here](#)

Question 12

Multiple Choice

1 points

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Question An ion is formed

- I. by either adding protons to or subtracting protons from the atom.
- II. by either adding electrons to or subtracting electrons from the atom.
- III. by either adding neutrons to or subtracting neutrons from the atom.

- Answer**
- A. Only I is true.
 - ✓ B. Only II is true.
 - C. Only III is true.
 - D. All of the statements are true.
 - E. Two of the statements are true.

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Question 13

Multiple Choice

1 points

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Question Which is the symbol for the isotope of nitrogen that has 7 protons and 8 neutrons?

- Answer**
- A. ^7_8N
 - B. ^8_7N
 - ✓ C. $^{15}_7\text{N}$
 - D. $^7_{15}\text{N}$

[◀ Add Question Here](#)

Question 14

Multiple Choice

1 points

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Question Which of the following represents a pair of isotopes?

Answer

- A. $^{14}_6\text{C}$, $^{14}_7\text{N}$
- ✔ B. $^{12}_6\text{C}$, $^{13}_6\text{C}$
- C. $^{18}_8\text{O}$, $^{19}_9\text{F}$
- D. O_2 , O_3
- E. $^{32}_{16}\text{S}$, $^{32}_{16}\text{S}^{2-}$

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Question 15

Multiple Choice

1 points

Question Which of the following statements is(are) true?

- I. The number of protons is the same for all neutral atoms of an element.
- II. The number of electrons is the same for all neutral atoms of an element.
- III. The number of neutrons is the same for all neutral atoms of an element.

Answer

- A. I, II, and III are all true.
- ✔ B. Only I and II are true.
- C. Only II and III are true.
- D. Only I and III are true.
- E. I, II, and III are all false.

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Question 16

Multiple Choice

1 points

Question The ion $^{31}\text{P}^{3-}$ has

Answer

- A. 15 protons, 15 neutrons, 15 electrons
- B. 15 protons, 15 neutrons, 12 electrons
- C. 15 protons, 15 neutrons, 3 electrons
- ✔ D. 15 protons, 16 neutrons, 18 electrons
- E. 15 protons, 31 neutrons, 15 electrons

[◀ Add Question Here](#)

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Question 17

Multiple Choice

1 points

Question The ion $^{127}\text{I}^-$ has

Answer

- ✔ A. 53 protons, 74 neutrons, 54 electrons
- B. 53 protons, 74 neutrons, 53 electrons
- C. 53 protons, 74 neutrons, 52 electrons
- D. 53 protons, 127 neutrons, 54 electrons
- E. 53 protons, 53 neutrons, 53 electrons

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Question 18

Multiple Choice

1 points

Question An element's most stable ion forms an ionic compound with chlorine having the formula XCl_2 . If the mass number of the ion is 24 and it has 10 electrons, what is the element and how many neutrons does it have?

Answer

- A. Ne, 14 neutrons
- B. Ne, 16 neutrons
- C. O, 16 neutrons
- ✔ D. Mg, 12 neutrons
- E. Na, 11 neutrons

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Question 19

Multiple Choice

1 points

Question Which element does *not* belong to the family or classification indicated?

Answer

- A. Br, halogen
- B. Kr, noble gas
- C. Co, transition metal
- D. K, alkali metal
- ✔ E. In, lanthanides

[◀ Add Question Here](#)

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Question 20

Multiple Choice

1 points

Question Which are alkaline earth halides?

Answer

- A. NaI , KBr , LiF
- ✔ B. CaF_2 , MgBr_2 , SrI_2
- C. PbI_2 , PbBr_2 , CdF_2
- D. MgO , MgS , CaO
- E. Al_2O_3 , In_2O_3 , Ga_2S_3

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Question 21

Multiple Choice

1 points

Question Select the group of symbols that would correctly complete the following statements, respectively.

_____ is the heaviest noble gas.

_____ is the transition metal that has 24 electrons as a 3+ ion.

___ is the halogen in the third period.
___ is the alkaline earth metal that has 18 electrons as a stable ion.

- Answer
- A. Rn, Cr, Br, Ca
 - B. Ra, Co, Cl, K
 - ✓ C. Rn, Co, Cl, Ca
 - D. Ra, Sc, Br, K

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Question 22

Multiple Choice

1 points

Question _____ form ions with a 2+ charge when they react with nonmetals.

- Answer
- A. Alkali metals
 - ✓ B. Alkaline earth metals
 - C. Halogens
 - D. Noble gases
 - E. None of these choices

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Question 23

Multiple Choice

1 points

Question Which of the following formulas is *not* correct?

- Answer
- A. ZnSO_4
 - B. $\text{Ca}(\text{OH})_2$
 - ✓ C. NaO
 - D. CsF
 - E. NH_4I

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Question 24

Multiple Choice

1 points

Question Which of the following is *not* the correct chemical formula for the compound named?

- Answer
- A. LiOH lithium hydroxide
 - ✓ B. Fe_3PO_4 iron(III) phosphate
 - C. HF hydrogen fluoride
 - D. BaI_2 barium iodide
 - E. Zn_3P_2 zinc phosphide

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Question 25

Multiple Choice

1 points

Question Which of the following is *not* the correct name for the formula given?

- Answer
- A. Fe_2S_3 iron(III) sulfide
 - B. PBr_5 phosphorus pentabromide
 - C. CoO cobalt(II) oxide
 - ✓ D. CaSO_3 calcium sulfate
 - E. HClO_2 chlorous acid

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Question 26

Multiple Choice

1 points

Question Which is *not* the correct chemical formula for the compound named?

- Answer
- A. potassium sulfate K_2SO_4
 - B. copper(II) oxide CuO
 - C. calcium carbonate CaCO_3
 - ✓ D.


sodium sulfide	NaS
E. barium nitrite	Ba(NO ₂) ₂

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Question 27  **Multiple Choice** **1 points**

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Question What is the correct formula for aluminum carbonate?


- Answer**
- A. AlCO₃
 -  B. Al₂(CO₃)₃
 - C. Al₃(CO₃)₂
 - D. Al₂CO₃
 - E. Al₃CO₃

 [Add Question Here](#)

Question 28  **Multiple Choice** **1 points**

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Question Which of the following is *not* the correct chemical formula for the compound named?


- Answer**
- A.
Li₂O lithium oxide
 -  B.
Fe₃PO₄ iron(III) phosphate
 - C.
HF hydrogen fluoride
 - D.
BaCl₂ barium chloride
 - E.
Mg₃N₂ magnesium oxide

 [Add Question Here](#)

Question 29  **Multiple Choice** **1 points**

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Question Which formula is *not* correct?


- Answer**
- A. NH₄C₂H₃O₂
 - B. MgO
 - C. Ca(NO₂)₂
 -  D. ZnCl
 - E. LiI

 [Add Question Here](#)

Question 30  **Multiple Choice** **1 points**

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Question What is the correct formula for tin(IV) oxide?


- Answer**
- A. SnO₄
 - B. Sn₄O
 -  C. SnO₂
 - D. SnO
 - E. SnO₃

 [Add Question Here](#)

Question 31  **Multiple Choice** **1 points**

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Question Which of the following is *not* the correct name for the formula given?

- Answer**
- A.
Fe₂O₃ iron(III) oxide
 - B.
PCl₅ phosphorus pentachoride
 - C.
CoO cobalt(II) oxide
 -  D.
BaSO₃ barium sulfate
 - E.
HClO hypochlorous acid

 [Add Question Here](#)

Question 32  **Multiple Choice** **1 points**

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Question Which of the following is *not* the correct chemical formula for the compound named?

- Answer

✔

A.

Na(OH)₂

sodium hydroxide

B.

LiSCN

lithium thiocyanate

C.

Co₂O₃

cobalt(III) oxide
- D.
- ZnS
- zinc sulfide

E.

Ca(C₂H₃O₂)₂

calcium acetate

Add Question Here

Question 33

Multiple Choice

1 points

Question

Which is the correct formula for gold(I) sulfide?

- Answer
- A.

AuS
- ✔

B.

Au₂S
- C.
- AuS₂
- D.
- Au₂S₂
- E.
- Au₂S₃

Add Question Here

Question 34

Essay

1 points

Question

Complete the following table.

Symbol	Number of Protons	Number of Neutrons	Number of Electrons	Net Charge
²⁰⁶ ₈₂ Pb				
	31	38		3+
	52	75	54	
⁵⁴ ₂₅ Mn ²⁺		29		2+

Answer

Symbol	Number of Protons	Number of Neutrons	Number of Electrons	Net Charge
²⁰⁶ ₈₂ Pb	82	124	82	0
⁶⁹ ₃₁ Ga ³⁺	31	38	28	3+
¹²⁷ ₅₂ Te ²⁻	52	75	54	2−
⁵⁴ ₂₅ Mn ²⁺	25	29	23	2+

Add Question Here

Question 35

Essay

1 points

Question

Complete the following table.

Symbol	⁵⁶ Fe ²⁺	
Number of protons		35
Number of neutrons		45
Number of electrons		
Atomic number		
Mass number		
Net charge		1-

Answer

Symbol	⁵⁶ Fe ²⁺	⁸⁰ Br [−]
Number of protons	26	35
Number of neutrons	30	45
Number of electrons	24	36
Atomic number	26	35
Mass number	56	80
Net charge	2+	1-

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Question 36

Fill in the Blank

1 points

Question

Name the following compounds:
Reference: Ref 2-1

Al₂(SO₄)₃

Answer

aluminum sulfate

			◀ Add Question Here
Question 37	<div>•</div> Fill in the Blank	1 points	<div>ModifyRemove</div>
<div>Question Name the following compounds: <i>Reference: Ref 2-1</i></div> <div>NH₄NO₃ Answer ammonium nitrate</div>			
Question 38	<div>•</div> Fill in the Blank	1 points	<div>◀ Add Question Here ModifyRemove</div>
<div>Question Name the following compounds: <i>Reference: Ref 2-1</i></div> <div>NaH Answer sodium hydride</div>			
Question 39	<div>•</div> Fill in the Blank	1 points	<div>◀ Add Question Here ModifyRemove</div>
<div>Question Name the following compounds: <i>Reference: Ref 2-1</i></div> <div>K₂Cr₂O₇ Answer potassium dichromate</div>			
Question 40	<div>•</div> Fill in the Blank	1 points	<div>◀ Add Question Here ModifyRemove</div>
<div>Question Name the following compounds: <i>Reference: Ref 2-1</i></div> <div>CCl₄ Answer carbon tetrachloride</div>			
Question 41	<div>•</div> Fill in the Blank	1 points	<div>◀ Add Question Here ModifyRemove</div>
<div>Question Name the following compounds: <i>Reference: Ref 2-1</i></div> <div>AgCl Answer silver chloride</div>			
Question 42	<div>•</div> Fill in the Blank	1 points	<div>◀ Add Question Here ModifyRemove</div>
<div>Question Name the following compounds: <i>Reference: Ref 2-1</i></div> <div>CaSO₄ Answer calcium sulfate</div>			
Question 43	<div>•</div> Fill in the Blank	1 points	<div>◀ Add Question Here ModifyRemove</div>
<div>Question Name the following compounds: <i>Reference: Ref 2-1</i></div> <div>HNO₃ Answer nitric acid</div>			
Question 44	<div>•</div> Fill in the Blank	1 points	<div>◀ Add Question Here ModifyRemove</div>
<div>Question Name the following compounds: <i>Reference: Ref 2-1</i></div> <div>N₂O₃ Answer dinitrogen trioxide</div>			
Question 45	<div>•</div> Fill in the Blank	1 points	<div>◀ Add Question Here ModifyRemove</div>
<div>Question Name the following compounds: <i>Reference: Ref 2-1</i></div> <div>SnI₂ Answer tin(II) iodide</div>			
Question 46	<div>•</div> Essay	1 points	<div>◀ Add Question Here ModifyRemove</div>
<div>Question Write the formula for: <i>Reference: Ref 2-2</i></div> <div>sodium dichromate Answer Na₂Cr₂O₇</div>			
			<div>◀ Add Question Here</div>

Question 47	<div>Essay</div> <div>Question Write the formula for: Reference: Ref 2-2</div> <div>iron(III) oxide</div> <div>Answer Fe_2O_3</div>	1 points	<div>Modify</div> <div>Remove</div>
Question 48	<div>Essay</div> <div>Question Write the formula for: Reference: Ref 2-2</div> <div>dinitrogen trioxide</div> <div>Answer N_2O_3</div>	1 points	<div>Add Question Here</div> <div>Modify</div> <div>Remove</div>
Question 49	<div>Essay</div> <div>Question Write the formula for: Reference: Ref 2-2</div> <div>cobalt(II) chloride</div> <div>Answer CoCl_2</div>	1 points	<div>Add Question Here</div> <div>Modify</div> <div>Remove</div>
Question 50	<div>Essay</div> <div>Question Write the formula for: Reference: Ref 2-2</div> <div>aluminum hydroxide</div> <div>Answer $\text{Al}(\text{OH})_3$</div>	1 points	<div>Add Question Here</div> <div>Modify</div> <div>Remove</div>
Question 51	<div>Essay</div> <div>Question Write the formula for: Reference: Ref 2-2</div> <div>hydrosulfuric acid</div> <div>Answer H_2S</div>	1 points	<div>Add Question Here</div> <div>Modify</div> <div>Remove</div>
Question 52	<div>Essay</div> <div>Question Write the formula for: Reference: Ref 2-2</div> <div>sulfurous acid</div> <div>Answer H_2SO_3</div>	1 points	<div>Add Question Here</div> <div>Modify</div> <div>Remove</div>
Question 53	<div>Essay</div> <div>Question Write the formula for: Reference: Ref 2-2</div> <div>nitric acid</div> <div>Answer HNO_3</div>	1 points	<div>Add Question Here</div> <div>Modify</div> <div>Remove</div>
Question 54	<div>Essay</div> <div>Question Write the formula for: Reference: Ref 2-2</div> <div>phosphoric acid</div> <div>Answer H_3PO_4</div>	1 points	<div>Add Question Here</div> <div>Modify</div> <div>Remove</div>
Question 55	<div>Essay</div> <div>Question Write the formula for: Reference: Ref 2-2</div> <div>acetic acid</div> <div>Answer $\text{HC}_2\text{H}_3\text{O}_2$</div>	1 points	<div>Add Question Here</div> <div>Modify</div> <div>Remove</div>
Question 56	<div>Essay</div> <div>Question Write the chemical formulas for the following compounds or ions. a) nitrate ion</div>	1 points	<div>Add Question Here</div> <div>Modify</div> <div>Remove</div>

- b) aluminum oxide
- c) ammonium ion
- d) perchloric acid
- e) copper(II) bromide

Answer

a) NO_3^-

b) Al_2O_3

c) NH_4^+

d) HClO_4

e) CuBr_2

Add Question Here

Question 57

Essay1 points

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- Question

Write the names of the following compounds:
- a) FeSO_4
- b) $\text{NaC}_2\text{H}_3\text{O}_2$
- c) KNO_2
- d) $\text{Ca}(\text{OH})_2$
- e) NiCO_3

Answer

a) iron(II) sulfate

b) sodium acetate

c) potassium nitrite

d) calcium hydroxide

e) nickel(II) carbonate

Add Question Here

OK