

Please read all the questions VERY carefully before answering. On scantron start from the same bubble number as the question number for your multiple choice question. Write neatly. If I cannot read your answer, you will not receive any point. Use the attached periodic table and constant chart. No outside paper is allowed. Total points = $38 + (18 \times 3) = 92$

SHORT ANSWER. In all calculations, write the set up equation first, then put the raw data with units. Then do your calculations. Points will be deducted if your answer is not clearly written.

1) Show calculations with units and sig. fig. to convert 16.32 gallon (gal) into milliliter (mL) (given 1 gal = 3.785 L and 1 L = 1000 mL). (6 pts.) 1) _____

2) Calculate (with units and sig fig) how many in³ are in 2.20 cm³ (1 in = 2.54 cm.)? (8 pts.) 2) _____

3) Write the formula for (4ts. each; Total 12 pts.): 3) _____

(a) Aluminum phosphate:

(b) Calcium Sulfite:

(c) Gallium pentachloride:

4) Write the names for the following compounds(4ts. each; Total 12 pts.):

4) _____

(a) $\text{Ca}(\text{HSO}_4)_2$:

(b) $\text{Al}_2(\text{CrO}_4)_3$:

(c) $\text{Co}(\text{ClO}_4)_2$:

MULTIPLE CHOICE. On scantron start from the same bubble number as the multiple choice question number. Choose the one alternative that best completes the statement or answers the question (3 pts. each).

5) What is the electron configuration for Ga?

5) _____

A) $1s^2 2s^2 2p^6 3s^2 3p^5 3d^{10} 4s^2 4p^1$

B) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^2 4p^6$

C) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^1$

D) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 4d^{10} 4p^1$

E) none of the above

6) How many core electrons are in a chlorine atom?

6) _____

A) 7

B) 1

C) 17

D) 10

E) none of the above

7) How many valence electrons are in a chlorine atom?

7) _____

A) 7

B) 17

C) 1

D) 10

E) none of the above

8) Chlorine and bromine have very similar chemical properties. This is best explained by the fact that both elements

8) _____

A) are gases.

B) have equal number of protons and electrons.

C) are in period 3 of the Periodic Table.

D) have the same number of valence electrons.

E) none of the above

9) Which state of matter has indefinite shape and is compressible?

9) _____

A) plasma

B) liquid

C) solid

D) gas

E) none of the above

- 10) How would you classify salt water? 10) _____
A) pure substance-element
B) mixture-heterogeneous
C) mixture-homogeneous
D) pure substance-compound
E) none of the above
- 11) An atom containing 7 protons, 8 neutrons, and 7 electrons 11) _____
A) is an ion.
B) cannot exist.
C) is charge-neutral.
D) is an oxygen atom.
E) none of the above
- 12) Which of the following elements has only 12 protons? 12) _____
A) O
B) C
C) Zn
D) Mg
E) none of the above
- 13) The names of the elements whose symbols are Si, P, Mn, and S are respectively, 13) _____
A) silicon, phosphorus, magnesium, and sulfur.
B) silicon, potassium, magnesium, and sulfur.
C) silicon, potassium, magnesium, and sodium.
D) silver, phosphorus, magnesium, and sulfur.
E) silicon, phosphorus, manganese, and sulfur.
- 14) Metals are located where on the periodic table? 14) _____
A) zig-zag diagonal line
B) right side
C) left side
D) middle
E) none of the above
- 15) What is the formula for an ionic compound made of magnesium and sulfur? 15) _____
A) MgS_2
B) MgS
C) Mg_2S_3
D) Mg_2S
E) none of the above
- 16) What is the name of the compound made from lithium and oxygen? 16) _____
A) lithium oxide
B) oxygen lithide
C) lithium dioxide
D) lithium(I) oxide
E) none of the above

17) The correct number of significant figures in the number 0.002320 is: 17) _____
A) 3
B) 4
C) 7
D) ambiguous
E) none of the above

18) Determine the answer to the following equation with correct number of significant figures: 18) _____
(4.123 × 0.12) + 24.2 = _____
A) 24.7
B) 24.695
C) 24.70
D) 25
E) none of the above

TRUE/FALSE. In scantron fill the circle "A" for a True answer and "B" for False answer (3 pts. each).

19) The charges on electrons and neutrons cancel each other to give neutral atoms. 19) _____

20) Isotopes are atoms of the same element that have a different numbers of neutrons. 20) _____

21) The ionic compound that forms between aluminum and oxygen is AlO. 21) _____

22) SO₂ is an ionic compound. 22) _____