Name: $\qquad$
$\qquad$ 1) In the laboratory a student determined the atomic mass of an element to be 28.02 . The accepted value is 28.086 . What is the difference between the student's observed value and the accepted value, expressed to the correct number of significant figures?

1) 0.066
2) 0.07
3) 0.10
4) 0.1
_ 2) Which pair is classified as a substance?
5) compounds and mixtures
6) elements and compounds
7) elements and solutions
8) elements and mixtures
$\qquad$ 3) Which could be the chemical formula of an element?
9) $A B$
10) $a B$
11) $A b$
12) $a b$
__ 4) The particle diagram below represents a sample of matter.


Which best describes the composition of the sample?

1) a mixture of elements
2) a single compound
3) a single element
4) a mixture of compounds
5) Using the rules for significant figures, the sum of 0.027 gram and 0.0023 gram should be expressed as
6) 0.0293 gram
7) 0.030 gram
8) 0.029 gram
9) 0.03 gram
$\qquad$ 6) Which formula represents a mixture?
10) $\mathrm{NH}_{3}(\mathrm{~g})$
11) $\mathrm{NH}_{3}(\mathrm{~s})$
12) $\mathrm{NH}_{3}(\mathrm{aq})$
13) $\mathrm{NH}_{3}(\ell)$
14) What is the number $2.1 \times 10^{3}$ expressed in conventional form with the proper number of significant digits?
15) 21,000 .
16) 0.0021
17) 2,100
18) 2,100 .
$\qquad$ 8) When sugar is dissolved in water, the resulting solution is classified as a
19) homogeneous mixture
20) heterogeneous mixture
21) heterogeneous compound
22) homogeneous compound
$\qquad$ 9) Matter is defined as anything that occupies space and has
23) mass
24) color
25) odor
26) a definite shape
$\qquad$ 10) In an equation, what symbol would indicate a mixture?
27) (s)
28) $(\mathrm{g})$
29) ( $\ell$ )
30) (aq)
___ 11) The diagram below shows a portion of a buret. What is the reading of the meniscus?

31) 31.72 ml
32) 32.28 ml
33) 32.72 ml
34) 31.28 ml
$\qquad$ 12) The list below shows four samples: $A, B$, $C$, and $D$.
(A) $\mathrm{HCl}(\mathrm{aq})$
(B) $\mathrm{NaCl}(\mathrm{aq})$
(C) $\mathrm{HCl}(\mathrm{g})$
(D) $\mathrm{NaCl}(\mathrm{s})$

Which samples are substances?

1) $A$ and $B$
2) $\quad C$ and $D$
3) $C$ and $B$
4) $A$ and $C$
_ 13) Which measurement contains three significant figures?
5) 0.0563 g
6) 0.05 g
7) 0.050 g
8) 0.056 g
__ 14) The particle diagram below represents a sample of matter.


Which best describes the composition of the sample?

1) a mixture of compounds
2) a mixture of elements and compounds
3) a single compound
4) a mixture of elements
$\qquad$ 15) Which of the following is an example of a compound?
5) Na
6) Ar
7) $\mathrm{O}_{2}$
8) $\mathrm{CO}_{2}$
9) Which substance can not be decomposed by a chemical change?
10) carbon monoxide ( CO )
11) carbon dioxide $\left(\mathrm{CO}_{2}\right)$
12) methane $\left(\mathrm{CH}_{4}\right)$
13) $\quad$ carbon (C)
14) Which is a formula of a binary compound?
15) $\mathrm{BiPO}_{4}$
16) $\mathrm{BaSO}_{4}$
17) $\mathrm{Mg}(\mathrm{ClO})_{2}$
18) $\mathrm{MgCl}_{2}$
19) Which measurement contains a total of three significant figures?
20) $1,205 \mathrm{~g}$
21) $12,050 \mathrm{~g}$
22) 0.125 g
23) 0.012 g
__ 19) The diagram below represents a portion of a triple-beam balance.


If the beams are in balance with the riders in the positions shown, what is the total mass of the object?

1) 545.20 g
2) 540.52 g
3) 540.20 g
4) 545.52 g
_ 20)
Burning is an example of a change that is
5) chemical
6) physical
7) intensive
8) endothermic
___ 21) Expressed to the correct number of significant figures, what is the correct sum of $(3.04 \mathrm{~g}+4.134 \mathrm{~g}+6.1 \mathrm{~g})$ ?
9) 13.274 g
10) 13.27 g
11) 13.3 g
12) 13 g
$\qquad$ 22) Which of the following is a chemical property of copper?
13) It is a good conductor of heat and electricity.
14) It reacts in moist air to produce green copper carbonate.
15) It has a shiny metallic luster.
16) It melts when heated to $1083^{\circ} \mathrm{C}$.

Given: $(52.6 \mathrm{~cm})(1.214 \mathrm{~cm})$

What is the product expressed to the correct number of significant figures?

1) $63.86 \mathrm{~cm}^{2}$
2) $63.9 \mathrm{~cm}^{2}$
3) $64 \mathrm{~cm}^{2}$
4) $63.8564 \mathrm{~cm}^{2}$

Which of the following can not be decomposed into simpler substances?

1) mixtures
2) compounds
3) solutions
4) elements

What is the number $8.90 \times 10^{-4}$ expressed in conventional form with the correct number of significant digits?

1) 89,000 .
2) 0.00089
3) 89,000
4) 0.000890
5) Which of the following is a chemical property of water?
6) it boils
7) it decomposes into $\mathrm{H}_{2}$ and $\mathrm{O}_{2}$
8) it evaporates
9) it freezes

The particles in a crystalline solid are arranged

1) randomly and close together
2) regularly and far apart
3) regularly and close together
4) randomly and far apart
___ 28) The mass of a solid is 3.60 grams and its volume is 1.8 cubic centimeters. What is the density of the solid, expressed to the correct number of significant figures?
5) $2.0 \mathrm{~g} / \mathrm{cm}^{3}$
6) $0.5 \mathrm{~g} / \mathrm{cm}^{3}$
7) $2 \mathrm{~g} / \mathrm{cm}^{3}$
8) $0.50 \mathrm{~g} / \mathrm{cm}^{3}$
$\qquad$ 29) The length of a block of metal is 5.5 cm , its width is 1.25 cm , and its height is 8.75 cm . What is the volume of the block expressed to the correct number of significant figures?
9) $60.16 \mathrm{~cm}^{3}$
10) $60.2 \mathrm{~cm}^{3}$
11) $60 . \mathrm{cm}^{3}$
12) $60 \mathrm{~cm}^{3}$
13) The particle diagrams below represent elements at STP.


Which particle diagram best represents a substance in the solid state?

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