Chemistry-575 Semester-1 Review Practice Test (General review with an emphasis on the types of questions missed most frequently by students.)

Matching

Match each item with the correct statement below.

- a. alpha particle c. gamma radiation
- b. beta particle
- 1. particle of charge -1 and mass equal to that of an electron
- _____ 2. emitted helium nucleus
- ____ 3. high-energy photons emitted by a radioisotope
 - Match each item with the correct statement below.a. fissionb. fusion
- 4. splitting of nucleus into smaller fragments
- 5. combination of two nuclei to form a nucleus of greater mass

Multiple Choice

Identify the choice that best completes the statement or answers the question.

	6.	All of the following are physical properties	of n	natter EXCEPT
		a. mass	с.	melting point
		b. color	d.	ability to rust
	7.	Which of the following is a heterogeneous n	nixtu	re?
		a air	c.	steel
		h salt water	d	soil
		o. Suit water	u.	5011
	8.	An example of a homogeneous mixture is		
		a water	с	noodle soup
		h stainless steel	d.	ovygen
		0. Stanness steel	u.	oxygen
	9.	Which of the following is a chemical proper	ty?	
		a. color	c.	freezing point
		b. hardness	d.	ability to react with oxygen
1	0	A student finds the mass and volume of a sa	mple	of alcohol Calculate the density
`	•••	mass = 79 grams		
		r_{1} r_{2} r_{1} r_{1} r_{2} r_{1} r_{1} r_{2} r_{1} r_{1} r_{2} r_{1} r_{1		
		density = ?		
		a. 0.79 g/ml	С.	21 g/ml
		b. 1.3 g/ml	d.	7900 g/ml

1 1 CC 111 C 0

 11.	Which sample has the greatest density?		
	a. 1 gram of aluminum	c.	100 grams of aluminum
	b. 10 grams of aluminum	d.	all samples of aluminum have the same density
 12.	As the mass of a sample increases, the volume sample	e of	the sample, and the density of the
	a. increases, increases	c.	increases, remains the same
	b. increases, decreases	d.	decreases, remains the same
 13.	A student measures the amount sugar in a stick should dissolve while the gum is being chewed. amount of sugar based on their chewing data w	t of Tl vas	gum by chewing it up, and spitting it out. The sugar he package said the gum was 74% sugar. The calculated 62%. What was their percent error?
	a. 0.16 %	c.	19%
	b. 16%	d.	Why would someone mass their chewed gum? (Don't choose this answer!)
14	Neutral atoms become jons when		
 1	a. protons are lost or gained	c.	electrons are lost or gained
	b. neutrons are lost or gained	d.	isotopes are lost or gained
 15.	Cations are pawsitive and are formed when atoms electrons.	oms	electrons, anions are negative and are
	a. gain, loose	c.	gain, gain
	b. lose, gain	d.	lose, lose
 16.	How does a sulfur atom become a sulfide ion w	vith	a -2 charge?
	a. Sulfur loses 2 protons	c.	Sulfur loses 2 electrons
	b. Sulfur gains 2 protons	d.	Sulfur gains 2 electrons
17.	How does a Aluminium atom become a Alumin	niur	n ion with a +3 charge?
	a. Aluminium loses 3 protons	c.	Aluminium loses 3 electrons
	b. Aluminium gains 3 protons	d.	Aluminium gains 3 electrons
18.	The mass number of an element is equal to		
	a. the total number of electrons in the nucle	us	
	b. the total number of protons and neutrons	in t	he nucleus
	c. less than twice the atomic number		
	d. a constant number for the lighter element	S	
 19.	How many protons, electrons, and neutrons do	es a	an atom with atomic number 50 and mass number 125
	a 50 protons 50 electrons 75 neutrons	c	120 neutrons 50 protons 75 electrons

b. 75 electrons, 50 protons, 50 neutrons d. 70 neutrons, 75 protons, 50 electrons

2	20.	An atom is made of the following subatomic pa Protons: 3 Neutrons: 4 Electrons: 2	art	ticles:
		The mass is and the char	ge	is
		a. 9, +1 b. 6, +1	c. d.	7, -1 7, +1
2	21.	If E is the symbol for a fictional element, which same element?	ch '	two of the following symbols represent isotopes of the
		1. ${}^{20}_{10}E$ 2. ${}^{20}_{11}E$ 3	3. ²	${}^{21}_{9}E$ 4. ${}^{21}_{10}E$
		a. 1 and 2 b. 3 and 4	c. d.	1 and 4 2 and 3
2	2.	The density of aluminum is 2.70 g/cm ³ . A stud grams. Calculate the volume of the sample. a. 0.0597 cm^3 b. 1.93 cm^3	der c. d.	nt measures the mass of a chunk of aluminum to be 45.2 16.7 cm ³ 122 cm ³
2	23.	If a wave has a high frequency, it also has a. high wavelength and high energy b. high wavelength and low energy c. low wavelength and high energy d. low wavelength and low energy		
2	.4.	Light is released when an electron moves from spectrum is a(n) spectrum. a. absorption b. emission	hi c. d.	igher energy levels to a lower energy level. The resulting excitation lower energy
2	25.	Which element has the electron configuration a. Titanium (Ti) b. Chromium (Cr)	1s c. d.	s ² 2s ² 2p ⁶ 3s ² 3p ⁶ 4s ² 3d ⁴ ? Sulfur (S) Selenium (Se)
2	26.	Which element has the electron configuration a. $1s^22s^22p^63s^23p^2$ c b. $1s^22s^22p^63s^23p^4$	fo c. d.	by the sulfide ion S ⁻² ? $1s^22s^22p^63s^23p^6$ $1s^22s^22p^63s^23p^64s^2$
2	27.	Which is the correct electron configuration for a. $1s^22s^22p^63s^23p^64s^23d^4$ control b. $1s^22s^22p^63s^23p^64s^23d^{10}4p^65s^6$ control b.	r tl c. d.	the element Molybdenum (Mo)? $1s^22s^22p^63s^23p^64s^24d^{10}4p^65s^25d^4$ $1s^22s^22p^63s^23p^64s^23d^{10}4p^65s^24d^4$
2	28.	Which of these elements has 5 valence electroa.Boron (B)b.Rubidium (Rb)	ons' c. d.	? Vanadium (V) Arsenic (As)



Look above at the diagram of the periodic table. Which region is referred to as the p-block on the diagram? a. A c. C

d. D

a. A b. B

30.

Look above at the diagram of the periodic table. Which element has an electron configuration that ends in the third energy level?

	a.	A	c.	C
	b.	В	d.	D
 31.	All	of the following elements are metals exce	ept _	·
	a.	aluminum	c.	sodium
	b.	chlorine	d.	copper
 32.	Wh	ich element is a halogen?		
	a.	bromine	c.	sodium
	b.	lithium	d.	potassium
 33.	Wh	ich of the following is a transition metal?		
	a.	gallium	c.	aluminum
	b.	nickel	d.	tellurium
 34.	All	Group 1 elements have		
	a.	one valence electron	c.	unpredictable properties
	b.	one energy level	d.	one electron
 35.	Hor	rizontal rows of the periodic table are know	wn a	IS
	a.	groups	c.	periods
	b.	families	d.	columns
36.	Col	umns of the periodic table are known as		
	a.	groups	c.	similarities
	b.	periods	d.	rows
		r · · · ·		

37. Which of the following is not a characteristic of a metal? a. lustrous c. brittle conducts heat flexible b. d. CD 38. Which region contains the alkaline earth metal family of elements? a. A C. С b. B d. D 39. Which element is a metalloid? krypton a. oxygen C. b. silicon mercury d. 40. Which of the following formulas is incorrect? a. Al₂(SO₄)₃ Ca(OH)₂ c. b. AlOH₃ d. $(NH_4)_2S$ 41. The correct name for Fe_2S_3 is . a. iron(III) sulfide iron(II) sulfide C. iron(I) sulfide iron sulfide d. b. 42. Which is the correct formula for the compound formed between beryllium and nitrogen? a. BeN c. Be₃N₂ b. Be₃N d. Be_2N_3 43. Which is the correct formula for the compound Chromium (II) Nitrate? a. $(Cr)_2NO_3$ c. CrNO₂ b. Cr_2NO_3 d. $Cr(NO_3)_2$ 44. The least penetrating form of radiation is _____. alpha radiation beta radiation a. C.

b. gamma radiation d. X rays 45. What particle is needed to complete this nuclear reaction? $222 \atop 86 \text{Rn} \rightarrow 218 \atop 84 \text{Po} + \underline{\qquad}$ a. $4 \atop 2 \text{He}$ c. $1 \atop 1 \text{H}$

b. $\int_{-1}^{0} e^{-1} d = \int_{-1}^{0} d = \int_{0}^{1} n d = \int_{0$

Name:



A student conducted an experiment to see how many mL of water came from different size blocks of ice. They melted three different blocks. The first block they chose was a 100 gram block, the second a 200 gram block, the final a 400 gram block. After the blocks were melted they measured the volume using a graduated cylinder.

Based on the description of the experiment, what was the independent variable?

- a. the type of material melted
- c. the volume of the melted water
- b. the mass of the ice blocks
- d. cannot be determined

Name:	

____ 48.



A student conducted an experiment to see how many mL of water came from different size blocks of ice.

Based on the graph above, what was the dependent variable?

- a. the type of material melted
- c. the volume of the melted water
- b. the mass of the ice blocks
- d. cannot be determined

N	a	m	e	:
---	---	---	---	---

____ 49.



A student conducted an experiment to see how many mL of water came from different size blocks of ice.

What is the slope of the graph above?

 a.
 100 mL / 50 grams
 c.
 1 mL / g

 b.
 1 g / mL
 d.
 150 mL / 150 g

50.



What is the most important holiday of the year?

a.	Haloween	c.	Pi Day
b.	Labor Day	d.	Mole Day