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مدونة المناهج السعودية https://eduschool40.blog الموقع التعليمي لجميع المراحل الدراسية في المملكة العربية السعودية

Chemistry Test

Atomic Molar Mass (g/mol):

Nitrogen (N) = 14.0Oxygen (O) = 16.0

Atomic Number:

Hydrogen (H) = 1 Carbon (C) = 6 Nitrogen (N) = 7 Oxygen (O) = 8 Sodium (Na) = 11 Chlorine (Cl) = 17

Physical Constants:

Ion product constant for water (K_w) at 25 °C = 1.00 x 10^{-14}

1. Mixing olive oil with an aqueous solution of table salt (NaCl) will form:

a.	homogeneous mixture	с.	colloidal solution
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- b. heterogenueous mixture d. suspension
- 2. Which of the following statements is **true**?
 - a. Sulfur (S) burns in air to form sulfur dioxide (SO₂) gas
 - b. Iron metal (Fe) forms iron carbonate when exposed to air
 - c. Sodium hydroxide (NaOH) reacts with nitric acid (HNO₃) to form salt, water and gas
 - d. All basic solutions turn blue litmus paper to red
- 3. In which of the following pairs, do both compounds exist as liquids at room temperature?
 - a. Nickel chloride (NiCl₂), and Bromine (Br₂)
 - b. Sodium acetate (CH₃COONa), and Nickel Chloride (NiCl₂)
 - c. Ethanol (C_2H_5OH), and Bromine (Br_2)
 - d. Sulfur dioxide (SO₂), and Ethanol (C₂H₅OH)
- 4. Which of the following compounds is classified as salt?

a.	HCN	c.	$Ca_3(PO_4)_2$
b.	CH ₃ COOH	d.	N_2O_5

5. Which of the following anions contains sulfur atom?

a.	Carbonate	c.	Phosphate
b.	Dichromate	d.	Thiocyanate

6. When an atom gains two electrons it becomes:

- a. Doubly negative chargedb. Triply positive chargedd. Neutral
- 7. How many ions would be produced on dissolving one formula unit of potassium hydrogen iodate (KH(IO₃)₂) in water?

a.	8	c.	4
b.	10	d.	3

8. Which of the following represents a conjugate acid-base pair?

a.	HBr(aq) and HCl(aq)	c.	$H_3O^+(aq)$ and $NH_4^+(aq)$
b.	HCO_3 (aq) and CO_3^2 (aq)	d.	$H_2O(1)$ and $H_2O_2(aq)$

9.	The	The number of electrons in the ion $(\int_{76}^{192} \text{Os}^{+8})$ is:				
	a. b.	84 116	c. d.	76 68		
10.	Pota	ssium (K) reacts with water (H ₂ O) to prod	uce			
	a. b.	KH(aq) and OH ⁻ (aq) KOH(aq) and H ₂ (g)	c. d.	$K_2O(s)$ and $H_2(g)$ $KOH(aq)$ and $H^+(aq)$		
11.	Whi	ch of the following is an alcohol?				
	a. b.	KOH CH3CHO	c. d.	HCOOH C2H5OH		
12.		ch of the following aqueous solution mixtu n the addition of small amount of strong ba		e 1		
	a. b.	NH ₃ (aq) and NH ₄ Cl(aq) NaI(aq) and Pb(NO ₃) ₂ (aq)	c. d.	AgNO ₃ (aq) and KCl(aq) HCl(aq) and NaNO ₃ (aq)		
13.	In w + 6?	hich of the following substances the oxida	tion n	umber of phosphorous atom (P) is		
	a. b.	PCl ₃ P ₂ O ₅	c. d.	ZnP ₂ O ₇ P ₄		
14.	mC ₇]	$H_8O_2(l) + nO_2(g) \longrightarrow pCO_2(g) +$	q H₂O((g)		
	After	balancing the above chemical equation, the	ne coe	fficients (m , n , p , q) are:		
	a. b.	m = 2, n = 8, p = 7, q = 2 m = 3, n = 10, p = 8, q = 4		m = 1, n = 6, p = 3, q = 6 m = 1, n = 8, p = 7, q = 4		
15.	P ₄ O	$_{10}(g) + 6PCl_3(g) + 6Cl_2(g) - 10$	POCL	₃ (g)		
	Wha	at is the equilibrium constant expression fo	r the a	bove equilibrium system?		
	b. с.	$K = 1 / P^{10}_{POC13}$ $K = 1 / P_{P4O10} \cdot P^{6}_{PC13} \cdot P^{6}_{C12}$ $K = P^{10}_{POC13} / P_{P4O10} \cdot P^{6}_{PC13} \cdot P^{6}_{C12}$ $K = P_{P4O10} \cdot P^{6}_{PC13} \cdot P^{6}_{C12} / P^{10}_{POC13}$				
16.	Whi	ch of the following contains ionic bond?				

- MgO(s) Hg(l) SO₂(g) I₂(s) c. d. a.
- b.

17. Which of the following substances is a polar covalent compound?

a.	CCl ₄ (l)	c.	Co(s)
b.	NO(g)	d.	NaCl(s)

18. What is the solubility product constant (K_{sp}) expression for a saturated solution of silver arsenate (Ag₃AsO₄)?

a.	$K_{sp} = [Ag^+]^3 [AsO_4^{3-}]$	с.	$K_{sp} = 1 / [Ag^+]^3 [AsO_4^{3-}]$
b.	$K_{sp} = [3Ag^+] [AsO_4^{3-}]$	d.	$K_{sp} = [Ag^+] [AsO_4^{3-}]^3$

19. Which of the following organic compounds is a saturated compound?

a.	CH ₃ CCCH ₃	c.	CH ₃ CHCHCH ₃
b.	CH ₂ CHCH ₂ NH ₂	d.	CH ₃ CH ₂ CH ₂ CH ₃

20. A piece of metal having a density equal to $1.74 \text{ g} / \text{cm}^3$ was dropped into a graduated cylinder containing 27.50 cm³ of water and the water level is raised to 32.00 cm³. What is the mass of this piece of metal?

a.	8.69 g	c.	11.3 g
b.	7.83 g	d.	1.74 g

21. If the pOH of a sample of tomato juice is equal to 9.50, then the hydrogen ion concentration $[H^+]$ of the sample is:

a.	$3.16 \ge 10^{-5} \mod / \text{liter}$	c.	1.00 x 10 ⁻⁷ mol / liter
b.	$3.16 \ge 10^{-10} \mod / \text{ liter}$	d.	$3.16 \ge 10^{-7} \mod / \text{ liter}$

What is the percent by mass of nitrogen (N) in the complex ([Co(NH₃)₄(NO₂)₂]Cl)? [molar mass of the complex ([Co(NH₃)₄(NO₂)₂]Cl) = 254.4 g / mol].

a.	22.0 %	c.	33.0 %
b.	44.0 %	d.	11.0 %

23. How many moles of oxygen (O) are there in 8.75 g of the compound $(Na_2S_2O_3.5H_2O)$? [molar mass of $(Na_2S_2O_3.5H_2O) = 248.2 \text{ g/mol}$].

a.	0.176 mole	c.	0.106 mole
b.	0.282 mole	d.	0.0353 mole

What is the mass of oxygen (O) in 3.25 g of hydrated sodium carbonate (Na₂CO₃.10H₂O)?
[molar mass of hydrated sodium carbonate = 381.4 g / mol]

a.	1.11 g	c.	1.44 g
b.	0.332 g	d.	1.77 g

- 25. A 5.00 cm³ of sulfuric acid (H₂SO₄) aqueous solution was titrated with 0.050 M of potassium hydroxide (KOH) standard solution. The titration required 7.10 cm³ of the base for complete neutralization. What is the acid's concentration?
 - a. 0.0355 mole / liter

c. 0.0178 mole / liter

b. 0.0500 mole / liter

d. 0.0710 mole / liter

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5 -	ABCO	15 -	ABCD	25 -	ABCO	35 -	ABOD	45 -		55 -	ABCD
6 -	ABCO	16 -	ABCO	26 -	ABCO	36 -	AGO	46 -		56 -	ABCO
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