

Kuwait University

Office of Assistant Vice President for Evaluation and Measurement

Academic Aptitude Tests

Student Name	Version A
Civil ID No.	1
]
Instructions:	
1. The aptitude tests consist of three tests.	

L 11511	02	1 110 011	
Mathematics	20 (No Calculator)	1 Hour	
Chemistry	25	1 Hour	

2. Mark all your answers on the **Answer Sheet** and in the proper section. On your answer sheet as shown below, using a pencil, darkenthe proper circle.

Time

1 Hour

Test

English

- 3. Verify all personal and test data on answer sheet and don't make any changes unless approved by the proctor.
- 4. Write down your name and Civil ID# on the test booklet.

Number of Questions

- 5. Copy the test's version on your answer sheet.
- 6. Follow the proctor's instruction during the test.
- 7. During testing, be quite and avoid any cheating situation.
- 8. Observe the allocated and the announced time for each test.

English Test Page 1

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.	Mix	king olive oil with an aqueous solution of t	table sa	alt (NaCl) will form:
	a. b.	homogeneous mixture heterogenueous mixture	c. d.	colloidal solution suspension
2.	Wh	ich of the following statements is true ?		
	a. b. c.	Sulfur (S) burns in air to form sulfur did Iron metal (Fe) forms iron carbonate wh Sodium hydroxide (NaOH) reacts with water and gas All basic solutions turn blue litmus pape	nen exp	posed to air acid (HNO ₃) to form salt,
3.		which of the following pairs, do both componenture?	ounds (exist as liquids at room
	a. b. c. d.	Nickel chloride (NiCl ₂), and Bromine (B Sodium acetate (CH ₃ COONa), and Nick Ethanol (C ₂ H ₅ OH), and Bromine (Br ₂) Sulfur dioxide (SO ₂), and Ethanol (C ₂ H	el Chlo	oride (NiCl ₂)
4.	Wh	ich of the following compounds is classifi	ed as s	alt?
	a. b.	HCN CH₃COOH	c. d.	$\begin{array}{c} Ca_3(PO_4)_2 \\ N_2O_5 \end{array}$
5.	Wh	ich of the following anions contains sulfur	r atom?)
	a. b.	Carbonate Dichromate	c. d.	Phosphate Thiocyanate
6.	Wł	nen an atom gains two electrons it become	s:	
	a. b.	Doubly negative charged Triply positive charged	c. d.	Doubly positive charged Neutral
7.		w many ions would be produced on dissolvengen iodate (KH(IO ₃) ₂) in water?	ving or	ne formula unit of potassium
	a. b.	8 10	c. d.	4 3
8.	Wh	ich of the following represents a conjugate	e acid-l	base pair?
	a. b.	HBr(aq) and HCl(aq) HCO ₃ -(aq) and CO ₃ ² -(aq)	c. d.	$H_3O^+(aq)$ and $NH_4^+(aq)$ $H_2O(l)$ and $H_2O_2(aq)$

9. The number of electrons in the ion ($_{76}^{192}$ Os⁺⁸) is:

a. 84

c. 76

b. 116

d. 68

10. Potassium (K) reacts with water (H₂O) to produce.....

a. KH(aq) and OH⁻(aq)

c. $K_2O(s)$ and $H_2(g)$

b. KOH(aq) and $H_2(g)$

d. KOH(aq) and $H^+(aq)$

11. Which of the following is an alcohol?

a. KOH

c. HCOOH

b. CH₃CHO

d. C₂H₅OH

12. Which of the following aqueous solution mixtures resists the change in pH value upon the addition of small amount of strong base aqueous solution?

a. NH₃(aq) and NH₄Cl(aq)

c. AgNO₃(aq) and KCl(aq)

b. NaI(aq) and Pb(NO₃)₂(aq)

d. HCl(aq) and NaNO₃(aq)

13. In which of the following substances the oxidation number of phosphorous atom (P) is + 6?

a. PCl₃

c. ZnP₂O₇

b. P₂O₅

d. P₄

14.
$$mC_7H_8O_2(1) + nO_2(g) \longrightarrow pCO_2(g) + qH_2O(g)$$

After balancing the above chemical equation, the coefficients $(\mathbf{m}, \mathbf{n}, \mathbf{p}, \mathbf{q})$ are:

a. $\mathbf{m} = 2$, $\mathbf{n} = 8$, $\mathbf{p} = 7$, $\mathbf{q} = 2$

c. m = 1, n = 6, p = 3, q = 6

b. $\mathbf{m} = 3$, $\mathbf{n} = 10$, $\mathbf{p} = 8$, $\mathbf{q} = 4$

d. $\mathbf{m} = 1, \mathbf{n} = 8, \mathbf{p} = 7, \mathbf{q} = 4$

15.
$$P_4O_{10}(g) + 6PCl_3(g) + 6Cl_2(g) = 10POCl_3(g)$$

What is the equilibrium constant expression for the above equilibrium system?

a. $K = 1 / P^{10}_{POC13}$

b. $K = 1 / P_{P4O10} . P^{6}_{PC13} . P^{6}_{C12}$

c. $K = P^{10}_{POC13} / P_{P4O10} . P^{6}_{PC13} . P^{6}_{C12}$

d. $K = P_{P4O10} \cdot P_{PCI3}^6 \cdot P_{CI2}^6 / P_{POCI3}^{10}$

16. Which of the following contains ionic bond?

a. $SO_2(g)$

c. MgO(s)

b. $I_2(s)$

d. Hg(1)

	a. b.	CCl ₄ (1) NO(g)	c. d.	Co(s) NaCl(s)
18.		at is the solubility product constant (K_{sp}) exer arsenate (Ag_3AsO_4) ?	xpressio	on for a saturated solution of
	a. b.	$K_{sp} = [Ag^{+}]^{3} [AsO_{4}^{3-}]$ $K_{sp} = [3Ag^{+}] [AsO_{4}^{3-}]$		$K_{sp} = 1 / [Ag^{+}]^{3} [AsO_{4}^{3-}]$ $K_{sp} = [Ag^{+}] [AsO_{4}^{3-}]^{3}$
19.	Wh	ich of the following organic compounds is	s a satuı	rated compound?
	a. b.	CH ₃ CCCH ₃ CH ₂ CHCH ₂ NH ₂	c. d.	CH ₃ CHCHCH ₃ CH ₃ CH ₂ CH ₂ CH ₃
20.	grad	iece of metal having a density equal to 1.7 duated cylinder containing 27.50 cm ³ of w 00 cm ³ . What is the mass of this piece of n	ater and	
	a. b.	8.69 g 7.83 g		11.3 g 1.74 g
21.		ne pOH of a sample of tomato juice is equate centration [H ⁺] of the sample is:	al to 9.5	50, then the hydrogen ion
	a. b.	$3.16 \times 10^{-5} \text{ mol / liter}$ $3.16 \times 10^{-10} \text{ mol / liter}$		$1.00 \times 10^{-7} \text{ mol / liter}$ $3.16 \times 10^{-7} \text{ mol / liter}$
22.	([C	at is the percent by mass of nitrogen (N) in o(NH ₃) ₄ (NO ₂) ₂]Cl)? olar mass of the complex ([Co(NH ₃) ₄ (NO ₂)		-
	a. b.	22.0 % 44.0 %		33.0 % 11.0 %
23.	(Na	w many moles of oxygen (O) are there in 8 $(2S_2O_3.5H_2O)$? olar mass of $(Na_2S_2O_3.5H_2O) = 248.2 \text{ g/r}$		of the compound
	a. b.	0.176 mole 0.282 mole	c. d.	0.106 mole 0.0353 mole
24.	(Na	at is the mass of oxygen (O) in 3.25 g of h ₂ CO ₃ .10H ₂ O)? olar mass of hydrated sodium carbonate =	•	
	a. b.	1.11 g 0.332 g		1.44 g 1.77 g

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

- 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

Q's#	Answers	Q's#	Answers	Q's#	Answers	Q's#	Answers	Q's#	Answers
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Q's# Answers	Q's# Answers	Q's# Answers	Q's# Answers
1 - ABCD	6 - ABCO	11 - A B C D	16 - A B C D
2 - ABCO	7 - ABCO	12 - A B C D	17 - A B C D
3 - ABCO	8 - A B C D	13 - (A (B) (C) (C)	18 - [A B C D]
5 - (A (B) (C) (C)	9 - A B C D	14 - A B C O	19 - 🛭 🕒 🕞 🗇 💮

AUSI	wers - Chen	nistry Exam			ار الحيمياء	إجابات اختب
Q's#	Answers	Q's# Answe	ers Q's#	Answers Q's	# Answers	Q's# Answers
2 -	A • © 0 • 8 © 0	6 - 8 8 6 7 - A 8 6	(D) 12 - (8 6 0		21 - 8 8 0 0 22 - A 8 0 0
4 -	A B • D	8 - A 6 C	14 - (A B C 6 19	- ABC	23 - A B C D 24 - A B C D
5 -	A B C 0	10 - A @ C			- A@©@	25 - 0 8 0 0

Answers - Ara	bic Exam		ربيسة	تبــــــــــــــــــــــــــــــــــــ	إجابات اخ
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1 - ABCD	11-ABCO	21 - A B C D	31 - A B C D	41 -ABCO	51 - A B C D
2 - A B C D	12 - A B C D	22 - A B C D	32 - A B C D	42 - A B C O	52 - A B C D
3 - ABCO	13 - A B C D	23 - A B C D	33 - (A) (B) (C) (D)	43 - A B C O	53 - A B C C
4 - ABCO	14 - A B C D	24 - A B C D	34 - A B C O	44 - A B C D	54 - A B C C
5 - ABCO	15 - A B C D	25 - A B C D	35 - A B © D	45 - A B C D	55 - A B C D
6 - ABCO	16-ABCO	26 - A B C D	36 - A @ O O	46 - A B C D	56 - A B C C
7 - ABCO	17 - A B C D	27 - A B C D	37 - A B C D	47 - A B C D	57 - A B C C
3 - ABCO	18 - A B C D	28 - A B C D	38 - A B C D	48 - A B C D	58 - A B C C
- ABCO	19 - A B C D	29 - A B C D	39 - A B C D	49 - A B C O	59 - A B C C
10 - A B C D	20 - A B C D	30 - A B C O	40 - A B C D	50 - A B C O	60 - A B C C