



Taibah University

Deanery of Academic Services

Unified Scientific Track

Answer Key

Mock Test For

Quiz No. 1

Introduction To Chemistry (CHEM 101)

(Chapters 1 & 2)

(Topics 01 – 06, Topic 07 is excluded)

For

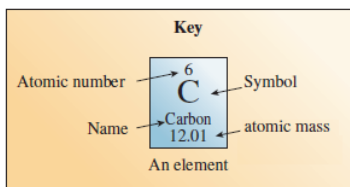
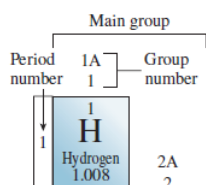
Unified Scientific Track Students

(All Campuses)

2nd Semester

1441 | 2019 – 2020

▲ Periodic Table of the Elements



Main group		Main group																	
Period number	Group number	1A	2A	3A	4A	5A	6A	7A	8A										
1	1	1	2	13	14	15	16	17	18										
2	2	3	4	5	6	7	8	9	10										
3	3	11	12	13	14	15	16	17	18										
4	4	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
5	5	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
6	6	55	56	57	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
7	7	87	88	89	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118

Transition metals		3B	4B	5B	6B	7B	8B			1B	2B
Period number	Group number	3	4	5	6	7	8	9	10	11	12
3	3	21	22	23	24	25	26	27	28	29	30
4	4	21	22	23	24	25	26	27	28	29	30
5	5	21	22	23	24	25	26	27	28	29	30
6	6	21	22	23	24	25	26	27	28	29	30
7	7	21	22	23	24	25	26	27	28	29	30

Lanthanides 6	58	59	60	61	62	63	64	65	66	67	68	69	70	71
	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
	Cerium	Praseodymium	Neodymium	Promethium (145)	Samarium	Europium	Gadolinium	Terbium	Dysprosium	Holmium	Erbium	Thulium	Ytterbium	Lutetium
	140.1	140.9	144.2		150.4	152.0	157.3	158.9	162.5	164.9	167.3	168.9	173.0	175.0
Actinides 7	90	91	92	93	94	95	96	97	98	99	100	101	102	103
	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr
	Thorium	Protactinium	Uranium	Neptunium	Plutonium	Americium	Curium	Berkelium	Californium	Einsteinium	Fermium	Mendelevium	Nobelium	Lawrencium
	232.0	231.0	238.0	(237)	(244)	(243)	(247)	(247)	(251)	(252)	(257)	(258)	(259)	(262)

▲ CHEM 101 Supplemental Information

$d = \frac{m}{V}$	$^{\circ}\text{C} = \frac{(^{\circ}\text{F} - 32)}{1.8}$	$^{\circ}\text{F} = 1.8 (^{\circ}\text{C}) + 32$	$^{\circ}\text{C} = K - 273$	$K = (^{\circ}\text{C}) + 273$
$M = \frac{n}{V}$	$M_1 V_1 = M_2 V_2$	$K_w = [\text{H}_3\text{O}^+] \times [\text{OH}^-] = 1 \times 10^{-14}$		$\text{pH} = -\log [\text{H}_3\text{O}^+]$
Molecular formula = empirical formula $\times n$ $n = \frac{\text{molar mass of molecular formula}}{\text{molar mass of empirical formula}}$	% mass of element X = $\frac{\text{mass of element X in 1 mol of compound}}{\text{mass of 1 mol of the compound}} \times 100\%$		% yield = $\frac{\text{actual yield}}{\text{theoretical yield}} \times 100$	
$q = C \times \Delta T$	$w = -P\Delta V$	$q = m \times C_s \times \Delta T$	$1 \text{ L.atm} = 101.3 \text{ J}$	Avogadro's No. = 6.022×10^{23}
Atomic mass = $\sum_n (\text{fraction of isotope } n) \times (\text{mass of isotope } n)$ = (fraction of isotope 1 \times mass of isotope 1) + (fraction of isotope 2 \times mass of isotope 2) + ...		Mole Conversions: <div style="display: flex; align-items: center; justify-content: center; gap: 10px;"> <div style="border: 1px solid black; padding: 5px;">Grams of Substance</div> <div style="text-align: center;"> \div Molar Mass \times Molar Mass </div> <div style="border: 1px solid black; padding: 5px;">Moles of Substance</div> <div style="text-align: center;"> \times Avo. Number \div Avo. Number </div> <div style="border: 1px solid black; padding: 5px;">Number of Atoms or Molecules</div> </div>		

Choose The Most Correct Answer:

1. From the following items, only is NOT matter.

- a. heat b. dust c. air d. sun

2. Which of the following is a pure substance?

- a. wood b. beef stew c. dry ice d. apple juice

3. Which of the following which is NOT a pure substance?

- a. sugar b. water c. ethanol d. air

4. In the state, matter has no specific shape but does have a specific volume?

- a. gaseous b. solid c. liquid d. salts

5. Deposition is process in which a changes into a

- a. solid, gas b. gas, solid c. gas, liquid d. liquid, solid

6. Among the following substances, the one that is not a compound is

- a. H₂O b. CO₂ c. MnO₂ d. Cl₂

7. A combination of sand, salt, and water is an example for a

- a. homogeneous mixture b. heterogeneous mixture
 c. compound d. pure substance

8. Which of the following does NOT have a uniform composition throughout?

- a. pure substance b. heterogeneous mixture
 c. homogeneous mixture d. both homogeneous and heterogeneous mixtures

9. Which of the following is a physical observation (property)?

- a. burns in oxygen b. forms a precipitate
 c. melts at 76 °C d. decomposes by heat

10. Which of the following is a chemical process (chemical change)?

- a. filtering sand from water b. removing salt from sea water
 c. dissolving coffee in water d. decomposing water into H₂ and O₂

11. Which of the following is NOT a unit in the SI system of units?

- a. Kilogram b. Second c. Inch d. Meter

12. The standard SI unit for temperature measurements is

- a. Fahrenheit b. Celsius c. Quart d. Kelvin

13. Many home freezers maintain a temperature of 0 °F. Express this temperature in Celsius degrees.

- a. -32.5 °C b. -17.8 °C c. -10.4 °C d. 0 °C

14. Ethanol boils at 173.1 °F. This temperature equals K.

- a. 337.4 b. 351.5 c. 387.1 d. 401.4

15. The SI prefixes *Mega* and *micro* represent, respectively.

- a. 10⁶ and 10⁻⁶ b. 10⁻⁶ and 10⁶ c. 10³ and 10⁻⁶ d. 10⁶ and 10⁻³

16. A volume of 10 mL is equal to

- a. 10⁻³ L b. 10 cm³ c. 10⁻¹ L d. 0.01 m³

17. How many micrometers are there in 0.35 km?

- a. 3.5 x 10⁻⁸ b. 3.5 x 10⁶ c. 3.5 x 10⁸ d. 3.5 x 10⁹

18. is the prefix multiplier used to represent the factor 10⁻⁹.

- a. pico b. nano c. micro a. Giga

19. The density of gold is 19.31 g.cm^{-3} . What is the volume (in cm^3) of a piece of gold weighing 294 g?

- a. 5.67×10^3 b. 15.2 c. 0.0657 d. 5677

20. Who in 1909 measured the charge on the electron?

- a. E. Rutherford b. R. Millikan c. J. Dalton d. J.J. Thomson

21. Which of the following has the element name and symbol correctly matching?

- a. Potassium, P b. Copper, Cr c. Magnesium, Mn d. Silver, Ag

22. Which of the following determines the identity of an element's atom?

- a. number of protons b. number of electrons
 c. number of neutrons d. total number of protons and neutrons

23. The most abundant isotope of copper is ${}^{63}_{29}\text{Cu}$. How many protons, neutrons, and electrons does this atom have, respectively?

- a. 63, 29, 29 b. 34, 29, 36 c. 29, 29, 34 d. 29, 34, 29

24. Which of the following elements is an alkaline earth metal?

- a. Li b. Ca c. Fe d. Ge

25. Anions are formed when atoms

- a. gain electrons c. lose protons b. gain neutrons d. lose electrons

26. Which of the following is FALSE about a neutron?

- a. It has a positive charge b. It is much more massive than an electron
 c. It is neutral d. It is often associated with protons

27. The charge of the ion formed by calcium is

- a. -2 b. +1 c. +2 d. +3

28. Which one of the following elements is most likely to form a -2 ion?

- a. Beryllium b. Silicon c. Selenium d. Strontium

29. The sublevel never exists in any atom.

- a. 2s b. 1p c. 3p d. 5d

30. How many valence electrons are there in an atom with an atomic number of 17?

- a. 1 b. 5 c. 7 d. 17

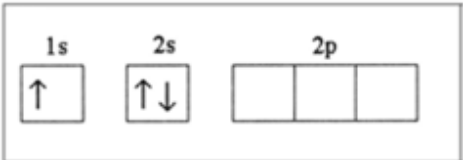
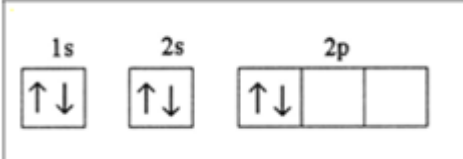
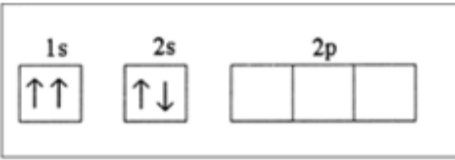
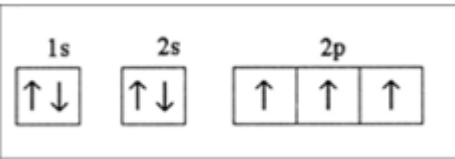
31. Which of the following is the correct electron configuration for bromine, Br?

- a. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 4d^{10} 4p^5$ b. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^5$
 c. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6$ d. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 4p^6$

32. The electron configuration of "Ne" is

- a. $1s^2 2s^2 2p^5$ b. $1s^2 2s^2 2p^3$
 c. $1s^2 2s^2 2p^6$ d. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$

33. Which of the following electron configurations is representing a violation for Hund's rule for an atom in its ground state?

- a. 
- c. 
- b. 
- d. 

Best Wishes

Al-Madinah, 10th of February, 2020