

MOCK FINAL EXAM

For CHEM 101

1st term 2017-1438

**Dear Students, Remember that the Final
Chemistry 101 Exam including chapters**

2,3,4,5, 6 and 7 only

[The exam containing 40 MCQs questions]

Choose the correct single answer

1- 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 often associated with protons.
- D) It is more difficult to detect than a proton or an electron.

2) Which of the following elements has an atomic number of 20?

- A) K
- B) Ca
- C) Fe
- D) Br

3) Cations are formed when atoms

- A) Gain of protons.
- B) Lose of neutrons.
- C) Gain of electrons.
- D) Lose of electrons

4) Among the following substances, the one that is not a compound is:

- A) H₂O
- B) Cl₂
- C) MnO₂
- D) CO₂

5) Helium (He) is considered which of the following?

- A) atomic element
- B) molecular compound
- C) molecular element
- D) ionic compound

6) What is correct name of the compound whose formula is P₄O₆?

- A) Phosphorous oxide
- B) Phosphorous hexoxide
- C) Tetra phosphorous oxide
- D) Tetra phosphorous hexoxide

7) How many atoms are in 3.50 moles of Ca?

- A) 6.02×10^{23}
- B) 2.10×10^{24}
- C) 0.581×10^{-23}
- D) 3.49×10^{24}

8) Calculate the molar mass of sodium sulphate Na₂SO₄.

- A) 59 g/mol
- B) 71 g/mol
- C) 119 g/mol
- D) 142. g/mol

9) The molecular formula of a compound:

- A) Indicates the simplest ratio of atoms in the compound
- B) Indicates the actual number of atoms in the compound
- C) Indicates the structure of the molecule.
- D) Is the same as the empirical formula.

10) Who in 1909 showed the charge on the electron, by oil drop experiment?

- A) Ernest Rutherford.
- B) John Dalton.
- C) Niels Bohr.
- D) Robert A. Millikan.

11) The electron configuration of sodium ion is:

- A) $1S^2 2S^2 2P^6 3S^1$
- B) $1S^2 2S^2 2P^6$
- C) $1S^2 2S^2 2P^6 3S^2 3P^6 4S^2$
- D) $1S^2 2S^2 2P^3$

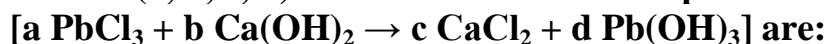
12) The chemical formula for iron(II) oxide is:

- A) Fe_2O_3
- B) Fe_2O
- C) FeO_2
- D) FeO

13) What is the mass percent of calcium in $CaSO_4$?

- A) 19.4%
- B) 29.4%
- C) 39.4%
- D) 49.4%

14) The coefficients (a, b, c, d) needed to balance the equation



- A) 3, 2, 2, 2
- B) 2, 3, 3, 2
- C) 4, 2, 2, 4
- D) 4, 3, 3, 2

15) How would you describe the nucleus?

- A) Dense, positively charged
- B) Mostly empty space, positively charged
- C) Tiny, negatively charged
- D) Dense, negatively charged

16) Which one of the following species has the same electron configuration as the Al^{3+} cation?

- A) S^{2-} .
- B) Cl^- .
- C) F.
- D) Na^+ .

17) In a chemical bond, the polarity of it can be specified by:

- A) electron affinity
- B) electronegativity
- C) ionization energy
- D) metallic character

18) Group 2A metals in their compounds always have an oxidation state of:

- A) +2
- B) -2
- C) 0
- D) +1

19) The resulting bond due to sharing of electron is:

- A) covalent
- B) polar covalent
- C) ionic
- D) metallic

20) Substance that produces H⁺ ion is called:

- A) acid
- B) base
- C) solution
- D) antacid

21) What is the molarity of a solution containing 5.00 moles of KCl in 2.00 L of solution?

- A) 2.50 M
- B) 1.00 M
- C) 5.00 M
- D) 10.0 M

22) Which of the following is the strongest acid?

- A) H₃PO₄
- B) NH₄⁺
- C) H₂CO₃
- D) H₂SO₄

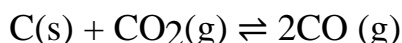
23) Sodium chloride can be classified as a(n) _____.

- A) gas
- B) solid
- C) weak electrolyte
- D) strong electrolyte

24) What is the $[\text{OH}^-]$ in a solution that has a $[\text{H}_3\text{O}^+] = 1.0 \times 10^{-3} \text{ M}$?

- A) $1.0 \times 10^{-3} \text{ M}$
- B) $1.0 \times 10^{-6} \text{ M}$
- C) $1.0 \times 10^{-8} \text{ M}$
- D) $1.0 \times 10^{-11} \text{ M}$

25) For the reaction of carbon with carbon dioxide to make carbon monoxide, the reaction is as follows. Write the form of the K_c .



A) $K_c = \frac{[\text{CO}]}{[\text{CO}_2]}$	C) $K_c = \frac{[\text{CO}]^2}{[\text{CO}_2]}$
B) $K_c = \frac{[2\text{CO}]^2}{[\text{CO}_2]}$	D) $K_c = \frac{[\text{CO}]^2}{[\text{C}][\text{CO}_2]}$

26) SI unit for work done is

- A. Pascals.
- B. Joules.
- C. Newton.
- D. Ohms.

27) Energy used by a moving object is termed as

- A. Potential Energy.
- B. Mechanical Energy.
- C. Kinetic Energy.
- D. Thermal Energy.

28) If V_1 is 2 L, V_2 is 4 L, and P is -2 atm , then $W = \underline{\hspace{1cm}} \text{ J}$.

- A. + 4
- B. - 4
- C. + 400
- D. - 400

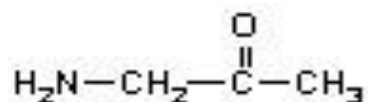
29) Endothermic reactions:

- A. release heat and increase temperature of the surroundings
- B. release heat and decrease temperature of the surroundings
- C. absorb heat and increase temperature of the surroundings
- D. absorb heat and decrease temperature of the surroundings

30) What class of hydrocarbons has the general formula C_nH_{2n-2} ?

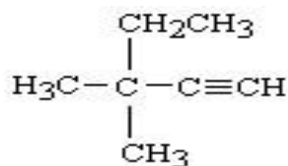
- A) alkanes
- B) alkenes
- C) alkynes
- D) aromatics

31) What functional group(s) are present in the following compound?



- A) amine
- B) ketone
- C) amine and ketone
- D) amine and carboxylic acid

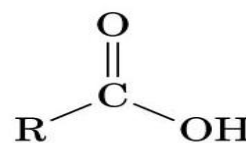
32) What is the name of the following structure?



- A) 3, 3-dimethyl-5-pentyne
- B) 3, 3-dimethyl-1-pentyne
- C) 3-ethyl-3-methyl-1-butyne
- D) 2-ethyl-2-methyl-3-butyne

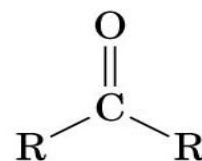
33) What is the name of compound shown to the right ?

- | |
|----------------------|
| (a) Alkanes |
| (b) Alkenes |
| (c) Alkynes |
| (d) Carboxylic acids |



34) What is the name of compound shown to the right ?

- | |
|-------------|
| (a) Alkanes |
| (b) Alkenes |
| (c) Alkynes |
| (d) Ketone |



35) Which of the following will not be found in DNA?

- A) adenine
- B) thymine
- C) guanine
- D) ribose

36) Which of the following will not be found in RNA?

- A) adenine
- B) thymine
- C) guanine
- D) ribose

37) The peptide bonds that link amino acids in a protein are

- A) ester bonds.
- B) ether bonds.
- C) amide bonds.
- D) glycosidic bonds.

38) Maltose is a

- A) monosaccharide.
- B) disaccharide.
- C) oligosaccharide.
- D) polysaccharide.

39) Ribose is a

- A) monosaccharide.
- B) disaccharide.
- C) oligosaccharide.
- D) polysaccharide

40) Glycogen is a:

- A) Monosaccharide
- B) Disaccharide
- C) Polysaccharide
- D) Proteins

Good luck