

JULY, 2021
EBS 132
GENERAL CHEMISTRY
2 HOURS

Candidate's Index Number:
Signature:

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
SCHOOL OF EDUCATIONAL DEVELOPMENT AND OUTREACH
INSTITUTE OF EDUCATION

COLLEGES OF EDUCATION
FOUR-YEAR BACHELOR OF EDUCATION (B.ED)
FIRST YEAR, END-OF-SECOND SEMESTER EXAMINATION, JULY/AUGUST, 2021

JULY 30, 2021 GENERAL CHEMISTRY 2:00 PM – 2:30 PM

This paper consists of two sections, A and B. Answer ALL the questions in Section A and TWO questions from Section B. Section A will be collected after the first 30 minutes.

SECTION A
Answer ALL the questions in this Section.

For items 1 to 20, each stem is followed by four options lettered A to D. Read each item carefully and circle the letter of the correct or best option.

1. The sub-atomic particle that differ in number in Isotopes is called
 - A. atomic mass.
 - B. electron.
 - C. neutron.
 - D. proton.
2. Which of the following happens during the initial stage of the formation of an ionic bond between sodium and chlorine?
 - A. Chlorine accepts an electron from sodium.
 - B. Chlorine loses two electrons to sodium.
 - C. Sodium accepts an electron from chlorine.
 - D. Sodium and chloride ions attract one another by electrostatic force.
3. Which of the following statements is/are true about pure substances?
 - I. Components can be separated by physical means.
 - II. Has specific temperature at which it boils or melts.
 - III. Has uniform composition.
 - A. I and III only
 - B. II only
 - C. II and III only
 - D. I, II, and III

4. How many electrons are used in the carbon-carbon bond in the compound, C_2H_2 ?
- 4
 - 6
 - 10
 - 12
5. How many moles of magnesium chloride will be formed when 1 mole of chlorine gas reacts with 1 mole of magnesium metal?
- 1 mole
 - 2 moles
 - 3 moles
 - 4 moles
6. Which of the following formulas determines the maximum number of electrons that occupy a shell, n ?
- $2n$
 - $2n^2$
 - $2n_2$
 - $2n^3$
7. What is the concentration of a solution containing 0.2 moles of sodium trioxocarbonate (iv) in 0.5dm^3 solution?
- 0.3mol/dm^3
 - 0.4mol/dm^3
 - 0.5mol/dm^3
 - 0.6mol/dm^3
8. A base, according to Bronsted-Lowry is defined as a/an;
- electron giver.
 - electron rich species.
 - proton acceptor.
 - proton donor.
9. The following pieces of information are conveyed by a balanced chemical equation except;
- Number of atoms/molecules of the reactants and products formed.
 - Physical states of reactants and products.
 - Symbols and formulae of all the substances involved in a particular reaction.
 - Whether a particular reaction is actually feasible or not.
10. Which one of the given acids is a mineral acid?
- Formic acid.
 - Hydrochloric acid.
 - Lactic acid.
 - Tartaric acid.
11. How many atoms of hydrogen are contained in 0.4 moles of hydrogen molecules?
[$L=6.02 \times 10^{23}$]
- 2.41×10^{23} atoms
 - 4.82×10^{23} atoms
 - 6.16×10^{23} atoms
 - 8.32×10^{23} atoms

12. Consider the reaction $n\text{Fe} + y\text{Cl}_2 \rightarrow z\text{FeCl}_3$. If $y = 6$ what is the value of n ?
- 4
 - 6
 - 8
 - 12
13. Crude oil is separated into its constituents by means of
- chromatography.
 - evaporation.
 - fractional distillation.
 - simple distillation.
14. Calculate the number of molecules in 6.4g of Sulphur(iv)oxide gas (S=32, O=16, $L=6.02 \times 10^{23}$)
- 6.02×10^{21}
 - 6.02×10^{22}
 - 6.02×10^{23}
 - 6.02×10^{24}
15. The IUPAC name of the compound $\text{C}(\text{CH}_3)_4$ is;
- 2,2-dimethylpropane
 - 2-methylpropane
 - pentane
 - propane
16. What is the empirical formula of a hydrocarbon which contains 88.9% of carbon?
[H= 1, C= 12]
- C_2H_3
 - C_2H_5
 - CH
 - CH_2
17. The following are all properties of a homologous series except:
- All members have similar physical properties but differ in chemical properties.
 - All members have the same general formula.
 - Each member differs in molecular formula from the next by CH_2 .
 - Members can be prepared through similar methods.
18. According to Lewis' concept, which of the following is not an acid?
- BCl_3
 - BeF_2
 - CH_3NH_2
 - Mn^{2+}
19. The strength of an acid or a base is defined in terms of its.....
- ability to conduct electricity
 - degree of dissociation in water
 - degree of dissolution in water
 - degree of neutralization
20. Aliphatic hydrocarbons containing carbon-carbon double bonds are known as
- Alkanes
 - Alkenes
 - Alkynes
 - Saturated hydrocarbons

