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COMMON FIRST MID-TERM TEST - 2023

Standard - 11

Reg. No.

CHEMISTRY

Time: 1.30 hours

Marks: 40

Answer ALL questions.

I. Choose the best option:

10×1=10

- 1) Total number of electrons present in 1.7g of ammonia is
 - a) 6.022×10^{23}
 - b) $6.022 \times 10^{22} / 1.7$
 - c) $6.022 \times 10^{24} / 1.7$
 - d) $6.022 \times 10^{23} / 1.7$
- 2) Splitting of spectral lines in an electric field is called
 - a) Zeeman effect
 - b) Shielding effect
 - c) Compton effect
 - d) Stark effect
- 3) The temperatures at which real gases obey the ideal gas laws over a wide range of pressure is called
 - a) Critical temperature
 - b) Boyle temperature
 - c) Inversion temperature
 - d) Reduced temperature
- 4) The value of the gas constant R is
 - a) $0.082 \text{ dm}^3 \text{ atm}$
 - b) $0.987 \text{ cal mol}^{-1} \text{ K}^{-1}$
 - c) $8.3 \text{ J mol}^{-1} \text{ K}^{-1}$
 - d) $8 \text{ erg mol}^{-1} \text{ K}^{-1}$
- 5) In an adiabatic process, which of the following is true?
 - a) $q = w$
 - b) $q = 0$
 - c) $\Delta E = q$
 - d) $P\Delta V = 0$
- 6) Which of the following is optically active?
 - a) 3 - Chloropentane
 - b) 2 - Chloropropane
 - c) Meso - tartaric acid
 - d) Glucose
- 7) The oxidation number of chlorine is maximum in
 - a) HOCl
 - b) Cl_2O_6
 - c) KClO_4
 - d) NaClO_3
- 8) The correct representation of Boyle's law is
 - a) $V \propto \frac{1}{T}$ (constant P)
 - b) $V \propto \frac{1}{P}$ (constant T)
 - c) $V \propto P$ (constant T)
 - d) $V \propto T$ (constant P)
- 9) An organic Compound weighing 0.8g gave on carius estimation, 0.376g of silver bromide. The percentage of bromine in the Compound will be close to
 - a) 46%
 - b) 20%
 - c) 2.0%
 - d) 4.6%
- 10) The purity of an organic compound is determined by
 - a) Chromatography
 - b) Crystallisation
 - c) Melting or Boiling point
 - d) Both (a) and (c)

II. Answer ANY FOUR questions:

4×2=8

- 11) Define relative atomic mass.

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- 12) What is Limiting Reagents?
13) Give the electronic configuration of Mn^{2+} and Cr^{3+} .
14) Define Avogadro hypothesis.
15) State the Zeroth law of thermodynamics.
16) Give the structure for the following compound:
(a) tertiary butyl iodide (b) 2, 2-dimethyl-1-chloropropane

III. Answer ANY FOUR questions:

4×3=12

- 17) Calculate the empirical formula of a compound containing 54.54% carbon, 9.09% hydrogen and rest oxygen.
18) How many unpaired electrons are present in the ground state of Fe^{3+} ($Z = 26$), Mn^{2+} ($Z = 25$) and Ar ($Z = 18$)?
19) Write a notes on Magnetic quantum number.
20) Give the difference between Ideal and Real gases.
21) List the characteristics of Gibbs free energy.
22) Describe the reactions involved in the detection of nitrogen in an organic compound by Lassaigne method.

IV. Answer ALL questions:

2×5=10

- 23) a) i) Distinguish between oxidation and reduction.
ii) Explain Heisenberg uncertainty principle.
(OR)
b) i) Define Joules Thomson effect.
ii) When ammonia combines with HCl, NH_4Cl is formed as white dense fumes. Why do more fumes appear near HCl?
24) a) i) What are spontaneous reactions? What are the conditions for the spontaneity of a process?
ii) State the Third law of thermodynamics.
(OR)
b) Describe the classification of organic compounds based on their structure.

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