

PRE-QUARTERLY EXAMINATION 2024

CLASS : 11
SUBJECT: CHEMISTRY

MARKS : 70
TIME : 3 HRS

I. CHOOSE THE CORRECT ANSWER:

15 X 1 = 15

1. Which of the following compound(s) has /have percentage of carbon same as that in ethylene (C₂H₄)
(a) propene (b) ethyne (c) benzene (d) ethane
2. The equivalent mass of ferrous oxalate is
(a) $\frac{\text{molar mass of ferrous oxalate}}{1}$ (b) $\frac{\text{molar mass of ferrous oxalate}}{2}$
(c) $\frac{\text{molar mass of ferrous oxalate}}{3}$ (d) none of these
3. The maximum number of electrons in a sub shell is given by the expression
(a) 2n² (b) 2l + 1 (c) 4l + 2 (d) none of these
4. How many electrons in an atom with atomic number 105 can have (n+1)l=8?
(a) 30 (b) 17 (c) 15 (d) unpredictable
5. Which of the following elements will have the highest electro-negativity?
(a) Chlorine (b) Nitrogen (c) Cesium (d) Fluorine
6. The element with positive electron gain enthalpy is
(a) Hydrogen (b) Sodium (c) Argon (d) Fluorine
7. The temperature 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
8. Use of hot air balloon in sports and meteorological observation is an application of
(a) Boyle's law (b) Newton's law (c) Kelvin's law (d) Brown's law
9. The intensive property among the quantities below is
(a) mass (b) volume (c) enthalpy (d) $\frac{\text{mass}}{\text{volume}}$
10. The temperature of the system, decreases in an _____.
(a) Isothermal expansion (b) Isothermal Compression
(c) adiabatic expansion (d) adiabatic compression
11. Solubility of carbon dioxide gas in cold water can be increased by
(a) increase in pressure (b) decrease in pressure
(c) increase in volume (d) none of these



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12. The general formula for alkadiene is
 (a) C_nH_{2n} (b) C_nH_{2n-1} (c) C_nH_{2n-2} (d) C_nH_{n-2}
13. Which one of the following names does not fit a real name?
 (a) 3 - Methyl -3-hexanone (b) 4-Methyl -3- hexanone
 (c) 3- Methyl -3- hexanol (d) 2- Methyl cyclo hexanone
14. Which of the following does not represent the mathematical expression for the Heisenberg uncertainty principle ?
 (a) $\Delta x. \Delta p \geq \frac{h}{4\pi}$ (b) $\Delta x. \Delta v \geq \frac{h}{4\pi m}$
 (c) $\Delta E. \Delta t \geq \frac{h}{4\pi}$ (d) $\Delta E. \Delta x \geq \frac{h}{4\pi}$
15. Which of the following pairs of elements exhibit diagonal relationship?
 (a) Be and Mg (b) Li and Be (c) Be and B (d) Be and Al

II. Answer the following questions: (Any 6)

Q.No:24 Compulsory

6 X 2 = 12

16. Define relative atomic mass.
 17. Define equivalent mass.
 18. How many orbitals are possible for $n = 4$?
 19. The Li^{2+} ion is a hydrogen like ion that can be described by the Bohr model. Calculate the Bohr radius of the third orbit and calculate the energy of an electron in 4th orbit.
 20. Define modern periodic law.
 21. What is screening effect?
 22. State Boyle's law.
 23. Define Diffusion.
 24. Define Gay Lussac's law.

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III. Answer the following questions: (Any 6)

Q.No:33 Compulsory

6 X 3 = 18

25. Define Molar mass.
 26. Distinguish between oxidation and reduction.
 27. State and explain Pauli exclusion principle.
 28. Explain ideal gas equation.
 29. Define Clausius statement.
 30. Define First law of thermodynamics.
 31. Define Law of mass action.
 32. Write the equilibrium constant for concentration and pressure (K_p and K_c).

33. Give the structural formula for the following name of the organic compound.

1. 2-Methyl butane 2. Acetaldehyde 3. 1,3 Butadiene

IV. Answer in Detail:

5 X 5 = 25

34. a) An acid found in Tamarind on analysis shows the following percentage composition: 32 % Carbon; 4 % Hydrogen; 64 % Oxygen. Find the empirical formula of the compound.

(OR)

b) Explain Principal quantum numbers and Magnetic quantum numbers.

35. a) Explain ionic radius. (OR)

b) (i) What are isoelectronic ions? Give examples.

(ii) What is effective nuclear charge ?

36. a) Derive the values of critical constants in terms of van der Waals constants. (OR)

b) Mixture of gases Dalton's law of partial pressure.

37. a) Explain characteristics of internal energy. (OR)

b) Relation between enthalpy 'H' and internal energy 'U'.

38. a) Relation between K_p and K_c . (OR)

b) (1) Ethane (2) 2-Methyl pentane (3) Cyclohexane

(4) 1,4 Penta diene (5) Ethyne



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