Class : 11   Register Number [ ][ ][ ][ ][ ][ ]

FIRST REVISION EXAMINATION, JANUARY - 2024

Time Allowed : 3.00 Hours]   **CHEMISTRY**   [Max. Marks : 70

PART – I

I.   Answer the following: 15x1=15

1. Carbon forms two oxides, namely CO and CO_2. The equivalent mass of which element remains constant?
    a) Carbon   b) Oxygen   c) (a) and (b)   d) Neither carbon nor oxygen

2. Which of the following does not represent the mathematical expression for the Heisenberg uncertainly principle?
    a) $\Delta x. \Delta P \geq \dfrac{h}{4\pi}$ b) $\Delta x. \Delta V \geq \dfrac{h}{4\pi m}$ c) $\Delta E. \Delta t \geq \dfrac{h}{4\pi}$ d) $\Delta E. \Delta x \geq \dfrac{h}{4\pi}$

3. In a given shell the order of screening effect is
    a) s > p > d > f   b) s > p > f > d   c) f > d > p > s   d) f > p > s > d

4. Water is a
    a) Basic Oxide   b) Acidic Oxide   c) Amphoteric Oxide   d) None of these

5. Which of the following has highest hydration energy?
    a) $MgCl_2$ b) $CaCl_2$ c) $BaCl_2$ d) $SrCl_2$

6. Maximum deviation from ideal gas is expected from.
    a) $CH_{4(g)}$ b) $NH_{3(g)}$ c) $H_{2(g)}$ d) $N_{2(g)}$

7. The bond dissociation energy of methane and ethane are 360 KJmol^{-1} and 620 KJmol^{-1} respectively. Then, the bond dissociation energy of C-C bond is
    a) 170 KJmol^{-1} b) 50 KJmol^{-1} c) 80 KJmol^{-1} d) 220 KJmol^{-1}

8. $2SO_{2(g)} + O_{2(g)} \rightleftharpoons 2SO_{3(g)}$ Value of K_c
    a) $\dfrac{[SO_3]}{[SO_2][O_2]}$ b) $\dfrac{[SO_3]^2}{[SO_2][O_2]}$ c) $\dfrac{[SO_3]^2}{[SO_2]^2[O_2]}$ d) $\dfrac{[SO_3]^2}{[SO_2]^2[O_2]^2}$

9. The Van't Hoff factor (i) for a dilute aqueous solution of the strong electrolyte barium hydroxide is
    a) 0   b) 1   c) 2   d) 3

10. According to VSEPR theory, the repulsion between different parts of electrons obet the order.
    a) l.p - l.p > b.p - b.p > l.p - b.p
    b) b.p - b.p > b.p - l.p > l.p - b.p
    c) l.p - l.p > b.p - l.p > b.p - b.p
    d) b.p - b.p > l.p - l.p > b.p - l.p

11. The purity of an organic compound is determined by
    a) Chromatography
    b) Crystallisation
    c) Melting or boiling point
    d) Both (a) and (c)

12. Which of the group has highest +I effect?
    a) CH_3^- b) $CH_3 - CH_2^-$ c) $(CH_3)_2 CH^-$ d) $(CH_3)_3 C^-$

13. Peroixde effect can be studied in case of
    a) Oct - 4 - ene   b) hex - 3 - ene   c) pent - 1 - ene   d) but - 2 - ene

14. Acetone $\xrightarrow[H_2O/H^+]{CH_3MgI}$ X ,   X is
    a) 2 - propanol   b) 2 methyl - 2 - propanol   c) 1 - propanol   d) acetanol

15. Biochemical oxygen demand value less than 5 ppm indicates a water sample to be
    a) highly pollluted
    b) poor in dissolved oxygen
   c) rich in dissolved oxygen
    d) low COD

PART - B

II.   Answer any six questions. Question No. 24 is compulsory.   6x2=12

16. Define Oxidation number.

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17. Define electronegativity.
18. Why Gypsum is called desert rose?
19. Why do astronauts have to wear protective suits when they are on the surface of moon?
20. Write the relationship between ΔH and ΔU for an ideal gas.
21. Write Raoult's Law.
22. Define Sublimation.
23. Which is considered to be earth's protective umberlla?
24. Which compound is aromatic.

a)   b)   c)
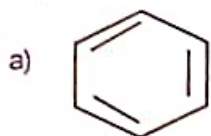
PART - C

III Answer any six questions. Question No. 33 is compulsory.   6x3=18
25. State Hund's rule.
26. Mention the uses of deuterium.
27. Explain why liquid ammonia bottle is coded before opening the seal.
28. State law of mass action.
29. Explain the covalent character in ionic bond.
30. Write short notes on Hyperconjucation.
31. What would happen. If the greenhouse gases were totally missing in the earth's atmosphere?
32. Define entropy? What is the unit of entropy?
33. Write the following reaction   Chloral + Chloro Benzene $\xrightarrow{\text{Conc } H_2SO_4}$?

PART - D

IV Answer all the questions.   5x5=25
34. a) An acid found in tamarinds on analysis shows the following percentage composition 32% carbon, 4% hydrogen, 64% oxygen. Find the empirical formula of the compound. (5)

        (OR)

    b) (i) How many radial nodes for 2s, 4p, 5d and 4f orbitals exhibit? How many angular nodes? (3)
        (ii) Define Orbital.   (2)
35. a) (i) What is lattice energy?   (3)
        (ii) Define enthalpy of neutralization. (2)

            (OR)

    b) (i) What are isotopes? Write the names of isotopes of hydrogen and explain. (5)
36. a) Derive the relation between K_p and K_c. (5)

            (OR)

    b) i) What is osmosis.   (2)
        ii) State and explain Henry's law. (3)
37. a) Derive the value of crtitical constants in terms of Vander Waals constants. (5)

            (OR)

    b) Explain paper chromatography. (5)
38. a) (i) Write Williamson ether synthesis. (3)
        (ii) Preparation of Chloropicrin. (2)

            (OR)

    b) On the basis of chemical reactions involved, explain how do CFC's cause depletion of ozone layer in stratosphere. (5)

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