Class : 11

Register Number

FIRST REVISION EXAMINATION, JANUARY-2025

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

PART – I

I. **Answer the following:** akwaacademy.blogspot.com   15x1=15

1. Gram equivalent mass of H_2SO_4 is ————— g eq^{-1}
   a) 94   b) 49   c) 2   d) 98

2. How many orbitals are possible in the 4th energy level? (n=4)
   a) 9   b) 0   c) 16   d) 4

3. What would be the IUPAC name for the atomic number 114?
   a) Ununpentium   b) Ununseptium   c) Ununbium   d) Ununquadium

4. Tritium has a half-life period of ——— years?
   a) 1.23   b) 12.3   c) 13.2   d) 32.1

5. An isotope of ——— is used as a source in the calibration of gamma ray detectors in nuclear chemistry?
   a) Magnesium   b) Barium   c) Radium   d) Calcium

6. The value of universal gas constant depends upon ———
   a) Temperature of the gas   b) Volume of the gas
   c) Number of moles of the gas   d) units of Pressure and volume.

7. The heat of formation of CO and CO_2 are – 26.4 kCal and – 94 kCal, respectively. Heat of combustion of carbon monoxide will be ———
   a) + 26.4 kcal   b) – 67.6 kcal   c) – 120.6 kcal   d) + 52.8 kcal

8. **Assertion :** An ideal solution obeys Raoult's law
   Reason : In an ideal solution, solvent, solvent as well as solute-solute interactions are similar to solute-solvent interactions.
   a) both assertion and reason are true and reason is the correct explanation of assertion
   b) both assertion and reason are true but reason is not the correct explanation of assertion
   c) assertion is true but reason is false
   d) both assertion and reason are false

9. Equi-molar concentrations of H_2 and I_2 are heated to equilibrium in a 1 litre flask. What percentage of initial concentration of H_2 has reacted at equilibrium if rate constant for both forward and reverse reactions are equal.
   a) 33%   b) 66%   c) $(33)^2$ %   d) 16.5 %

10. CaO and NaCl have the same crystal structure and approximately the same radii. It U is the lattice energy of NaCl, the approximate lattice energy of CaO is ———
    a) U   b) 2U   c) $U/2$ d) 4U

11. The general formula for alkene is ———
    a) C_nH_{2n+2} b) C_nH_{2n} c) C_nH_{2n-2} d) C_nH_{n-2}

12. 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.

13. The geometrical shape of carbanion is ———
    a) Linear   b) tetrahedral   c) Planar   d) Pyramidal

14. C -X bond is strongest in ———
    a) Chloromethane   b) Iodomethane   c) Bromomethane   d) Fluoromethane

15. The pH of normal rain water is ———
    a) 6.5   b) 7.5   c) 5.6   d) 4.6

PART - II

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

16. What do you understand the term oxidation number?
17. What is screening effect?
18. Tritium is a radioactive element. prove it?
19. What is lattice energy?
20. State Raoult's law?
21. Give the IUPAC names of the following compounds.
     i) $CH_3 - O - CH_3$ ii) $CH_2 = CH - CH = CH_2$
22. What is Homolytic Cleavage?
23. Differentiate BOD and COD.
24. Calculate the entrply change during the melting of one mole of ice into water at $0°C$ and 1 atm pressure. Enthalpy of fusion of ice is 6008 $Jmol^{-1}$.

PART – III

III. **Answer any 6 questions. Question number : 33 is compulsory.**   6x3=18

25. Balance the following equation by ion electron method.
     $KMnO_4 + SnCl_2 + HCl \rightarrow MnCl_2 + SnCl_4 + H_2O + KCl$.
26. Describe Deuterium exchange reactions.
27. Discuss the similarities between beryllium and aluminium.
28. Explain Joule- Thomson effect?
29. Derive $C_p - C_v = nR$.
30. What type of hybridisations are possible in the following geometeries?
     a) octahedral   b) tetrahedral   c) square planer.
31. Write short notes on ortho, para directors in aromatic electrophilic substitution reactions.
32. Differentiate BOD and COD akwaacademy.blogspot.com
33. Give IUPAC names for the following organic compounds.
     i. $CH_3-CH(CH_3)-CH_2OH$ ii. $(CH_3)_2CH-CH_2 = CH_2$ iii. $(CH_3)_2CH-CH_2-CH(CH_3)-CH(CH_3)_2$

PART - IV

IV. **Answer all the questions.**   5x5=25

34. a) i) Balance the equation by ion electron method. $Zn + NO_3^- \rightarrow Zn^{2+} + NO$ (in acid medium)
       ii) State Hund's rule.

               (OR)

     b) i) Explain the diagonal relationship.
       ii) Explain the periodic trend of ionisation potential.

35. a) i) Write any one method of preparation of Hydrogen peroxide.
       ii) Write short notes on hydrogen bonding.

               (OR)

     b) How will you prepare Sodiumhydroxide commercially by Castner's Kenner method? and Mention its uses.

36. a) i) Distinguish between Diffusion and effusion .
       ii) Defind Heat of Neutralization.

               (OR)

     b) Deduce the Van't Hoff equation.

37. a) Exaplain the factors influencing the solubility in detail.

               (OR)

     b) Draw the Mo diagram for oxygen molecule. Calculate its bond order and show that O_2 is paramagnetic.

38. a) i) Explain paper chromatography.
       ii) Write a short notes on Hyperconjucation.

               (OR)

     b) What are the various methods you suggest to protect our environment from pollution?