

**Class : 11**Register  
Number**SECOND REVISION EXAMINATION - 2024**

Time Allowed : 3.00 Hours]

**CHEMISTRY**

[Max. Marks : 70

**PART - I**

- I. Answer the following:** 15x1=15
- 7.5g of a gas occupies a volume of 5.6 litres at 0°C and 1 atm pressure. The gas is  
a) NO                                      b) N<sub>2</sub>O                                      c) CO                                      d) CO<sub>2</sub>
  - The maximum number of electrons in a subshell is given by the expression.  
a) 2n<sup>2</sup>                                      b) 2l + 1                                      c) 4l + 2                                      d) None of these
  - The element with positive electron gain enthalpy is  
a) Hydrogen                                      b) Sodium                                      c) Argon                                      d) Fluorine
  - Zeolite used to soften hardness of water is, hydrated  
a) Sodium Aluminium Silicate                                      b) Calcium Aluminium Silicate  
c) Zinc Aluminium Borate                                      d) Lithium Aluminium Hydride
  - Lithium shows diagonal relationship with  
a) Sodium                                      b) Magnesium                                      c) Calcium                                      d) Aluminium
  - If the temperature and volume of an ideal gas is increased to twice its values, the initial pressure P becomes  
a) 4P                                      b) 2P                                      c) P                                      d) 3P
  - Heat of Combustion is always  
a) Positive                                      b) Negative  
c) Zero                                      d) either Positive or Negative
  - H<sub>2(g)</sub> + I<sub>2(g)</sub> ⇌ 2HI<sub>(g)</sub> Find K<sub>p</sub> K<sub>c</sub> relationship.  
a) K<sub>p</sub> > K<sub>c</sub>                                      b) K<sub>p</sub> < K<sub>c</sub>                                      c) K<sub>p</sub> = K<sub>c</sub>                                      d) K<sub>p</sub> =  $\frac{1}{K_c}$
  - Which one of the following gases has the lowest value of Henry's law constant?  
a) N<sub>2</sub>                                      b) He                                      c) CO<sub>2</sub>                                      d) H<sub>2</sub>
  - Which one of the following is diamagnetic?  
a) O<sub>2</sub>                                      b) O<sub>2</sub><sup>2-</sup>                                      c) O<sub>2</sub><sup>·-</sup>                                      d) None
  - Ortho + Para nitro phenol can be separated by  
a) Azeotropic Distillation                                      b) Destructive Distillation  
c) Steam Distillation                                      d) Cannot be separated
  - Homolytic Fission of covalent bond leads to the formation of  
a) Electrophile                                      b) Nucleophile                                      c) Carbocation                                      d) Free radical
  - The compound that will react most readily with gaseous bromine has the formula.  
a) C<sub>3</sub>H<sub>6</sub>                                      b) C<sub>2</sub>H<sub>2</sub>                                      c) C<sub>4</sub>H<sub>10</sub>                                      d) C<sub>2</sub>H<sub>4</sub>
  - The raw material for Rasching process.  
a) Chloro Benzene                                      b) Phenol                                      c) Benzene                                      d) Anisole
  - The P<sup>H</sup> of normal rain water is  
a) 6.5                                      b) 7.5                                      c) 5.6                                      d) 4.6

**PART - B**

- II. Answer any six questions. Question No. 24 is compulsory.** 6x2=12
- Define Relative atomic mass.
  - Why Halogens act as Oxidising Agents?
  - Why NaOH is much more water soluble than Chloride?

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19. Graham's diffusion Law.
20. Define Hess's law of constant Heat Summation.
21. Define Normality.
22. Write conditions for Enantiomerism (or) Optical Isomerism.
23. Define Smog.
24. Select the following which is Ortho, meta directing groups.
  - a)  $\text{—OH}$
  - b)  $\text{—NO}_2$
  - c)  $\text{—NH}_2$
  - d)  $\text{—COOH}$

## PART - C

- III Answer any six questions. Question No. 33 is compulsory. 6x3=18
25. The Stabilisation of a half filled d orbital is more pronounced than that of p - orbital why?
  26. Discuss the three types of Covalent Hybrides.
  27. Can a Vander Waals gas with  $a = 0$  be liquified? Explain.
  28. State Le - Chatelier Principle.
  29. What type of Hybridisations are possible in the following Geometries?
    - a) Octahedral
    - b) Tetrahedral
    - c) Square Planar
  30. Write short notes on Resonance.
  31. Dissolved Oxygen in water is responsible for Aquatic Life. What processes are responsible for the reduction in dissolved oxygen in Water?
  32. State the first Law of Thermodynamics.
  33. Complete the reaction:
 
$$\text{C}_6\text{H}_5\text{Cl} + \text{NaOH} \xrightarrow[300 \text{ atm}]{350^\circ\text{C}} ?$$

## PART - D

- IV Answer all the questions. 5x5=25
34. a) i) State Heisenberg uncertainty principle. (3)  
 ii) Write the 4 quantum number. (2)  
 (OR)  
 b) Balance the following equation by Oxidation number method. (5)  

$$\text{K}_2\text{Cr}_2\text{O}_7 + \text{KI} + \text{H}_2\text{SO}_4 \longrightarrow \text{K}_2\text{SO}_4 + \text{Cr}_2(\text{SO}_4)_3 + \text{I}_2 + \text{H}_2\text{O}$$
  35. a) (i) Explain why Hydrogen is not placed with the halogen in the Periodic Table. (3)  
 (ii) Give the uses of Heavy Water. (2)  
 (OR)  
 b) State the various statements of Second Law of Thermodynamics. (5)
  36. a) Derive  $K_p$  and  $K_c$  relationship for the decomposition of HI reaction. (5)  
 (OR)  
 b) i) What is relative lowering of Vapour Pressure. (3)  
 ii) Explain the effect of pressure on Solubility. (2)
  37. a) i) Distinguish between Diffusion and Effusion. (3)  
 ii) Explain why the size of a weather balloon becomes larger and larger as it ascends up into larger altitude. (2)  
 (OR)  
 b) Give the General characteristics of Organic Compounds? (5)
  38. a) (i) Differentiate the following: BOD and COD (3)  
 (ii) What are Particulate Pollutants. (2)  
 (OR)  
 b) Explain  $\text{SN}^1$  Mechanism (5)