

QUARTERLY EXAMINATION - 2024

CLASS : 11

Time : 3.00 Hours

CHEMISTRY

REG No

Maximum Marks : 70

PART - I

- I. Answer all the questions with choose the correct option : 15x1= 15
- Oxidation number of oxygen in oxygen difluoride (OF_2) is
a) -2 b) -1 c) -1/2 d) +2
 - The maximum number of electrons in a subshell is given by the expression
a) $2n^2$ b) $2l+1$ c) $2(2l+1)$ d) None of these
 - Which one of the following is the least electronegative element?
a) Bromine b) Chlorine c) Iodine d) Hydrogen
 - Water is a
a) Basic oxide b) Acidic oxide c) Amphoteric oxide d) None of these
 - Which one of the following is used to restore the white colour of the old paintings.
a) Heavy water b) Hydrogen peroxide c) Water gas d) Sodium chloride
 - 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
 - Change in internal energy, when 4 KJ of work is done on the system and 1 KJ of heat is given out by the system is
a) +1 KJ b) -5 KJ c) +3 KJ d) -3 KJ
 - 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
 - In adiabatic process, which one of the following magnetic material is used to produce cooling by removing magnetic property
a) Ferrous sulphate b) Copper sulphate c) Gadolinium sulphate d) Zinc sulphate
 - $\frac{K_c}{K_p}$ for the reaction, $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightleftharpoons 2\text{NH}_3(\text{g})$ is
a) $\frac{1}{RT}$ b) \sqrt{RT} c) RT d) $(RT)^2$
 - If $Q < K_c$, the reaction will proceed in the
a) Forward direction b) Reverse direction c) Equilibrium state d) None of these
 - Nitrogen detection in an organic compound is carried out by Lassaigne's test. The blue colour formed is due to the formation of
a) $\text{Fe}_3[\text{Fe}(\text{CN})_6]_2$ b) $\text{Fe}_4[\text{Fe}(\text{CN})_6]_3$ c) $\text{Fe}_4[\text{Fe}(\text{CN})_6]_2$ d) $\text{Fe}_3[\text{Fe}(\text{CN})_6]_3$
 - Which one of the following shows functional isomerism?
a) Ethylene b) Propane c) Ethanol d) CH_2Cl_2
 - What is the hybridisation state of benzyl carbonium ion.
a) sp^2 b) sp^3 c) sp^3 d) sp^2d
 - Homolytic fission of covalent bond leads to the formation of
a) Electrophile b) Nucleophile c) Carbo cation d) Free radical

PART-B

- II. Answer any SIX questions :
Question No. 24 is compulsory

6 x 2 = 12

16. Define the term mole.

11th Chemistry - Page : 1

17. State Hund's rule of maximum multiplicity.
18. What are isoelectronic ions? Give example.
19. What is water-gas shift reaction?
20. Define Dalton's law of partial pressures.
21. Write the K_p and K_c for the following reaction.
 $2SO_2(g) + O_2(g) \rightleftharpoons 2SO_3(g)$
22. What is sublimation?
23. What are Hyperconjugation?
24. If an automobile engine burns petrol at a temperature of 816°C and if the surrounding temperature is 21°C , Calculate its maximum possible efficiency.

PART-C**III. Answer any SIX questions : -****6 x 3 = 18****Question No. 33 is Compulsory**

25. Find the molar mass of the following
 (a) Urea (NH_2CONH_2) (b) Boric acid (H_3BO_3) (c) Sulphuric acid (H_2SO_4)
26. What is exchange energy?
27. Explain diagonal relationship.
28. What are ortho and para hydrogen?
29. What is entropy? Give its unit.
30. Distinguish between diffusion and effusion.
31. State Le-Chatelier principle.
32. Explain electromeric effect.
33. Give the structure for the following compound.
 (i) 3-ethyl-2-methyl-1-pentene (ii) 3-Chlorobutanol. (iii) 3-methylbutan-2-ol.

PART-D**IV. Answer all questions :****5 x 5 = 25**

34. (a) (i) Define equivalent mass. (2)
 (ii) Balance the following equation by oxidation number method. (3)
 $\text{K}_2\text{Cr}_2\text{O}_7 + \text{KI} + \text{H}_2\text{SO}_4 \rightarrow \text{K}_2\text{SO}_4 + \text{Cr}_2(\text{SO}_4)_3 + \text{I}_2 + \text{H}_2\text{O}$ [OR]
- (b) (i) Write a note on Aufbau principle (2)
 (ii) Write the assumptions of Bohr atom model. (3)
35. (a) (i) Define Modern Periodic law. (2)
 (ii) Explain the periodic trend of ionisation potential [OR] (3)
- (b) (i) Give the uses of heavy water. (2)
 (ii) What are the three types of Covalent hydrides. Give examples. (3)
36. (a) (i) State Boyle's law (2)
 (ii) What is Joule-Thomson effect? [OR] (3)
- (b) (i) State the third law of thermodynamics (2)
 (ii) List the characteristics of internal energy (3)
37. (a) (i) Define Gibb's free energy. (2)
 (ii) What are state and path functions? Give two examples. [OR] (3)
- (b) Derive the relation between K_p and K_c . (5)
38. (a) Give a brief description of the principles of (5)
 (i) Fractional distillation (5)
 (ii) Column chromatography [OR]
- (b) What are electrophiles and nucleophiles? (5)
 Give suitable examples for each