Class : 11   Register ☐☐☐☐☐☐

SECOND REVISION EXAMINATION - 2025

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

PART – I

akwaacademy.blogspot.com   15x1=15

Note :   i) Answer all the questions
ii) Choose the most suitable answer from the given four alternatives and write the option code and the corresponding answer.

1. Which one of the following is used as a standard atomic mass
   a) $_6C^{12}$ b) $_7C^{12}$ c) $_6C^{13}$ d) $_6C^{14}$

2. The maximum number of electrons in a sub shell is given by the expression.
   a) $2n^2$ b) $2l+1$ c) $4l+2$ d) none of these

3. Which one of the following is the least electronegative element?
   a) Bromine   b) Chloride   c) Iodine   d) Hydrogen

4. Water gas is   a). $H_2O_{(g)}$ b) $CO + H_2O$ c) $CO + H_2$ d) $CO + N_2$

5. **Assertion :**   Generally alkali and alkaline earth metals form superoxides.
   Reason :   There is a single bond between O and O in superoxides.
   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.

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. Which one of the following is not a thermodynamics function?
   a)   internal energy   b)   enthalpy   c)   entropy   d)   frictional energy

8. The formation of ammonia from $N_{2(g)}$ and $H_{2(g)}$ is an reversible reaction.
   $$N_{2(g)} + 3H_{2(g)} \rightleftharpoons 2NH_{3(g)} + Heat$$
   What is the effect of increase of temperature on this equilibrium reaction?
   a)   equilibrium is unaltered   b)   formation of ammonia is favoured
   c)   equilibrium is shifted to the left   d).   reaction rate does not change

9. The molality of a solution containing 1.8 g of glucose dissolved in 250 g of water is
   a)   0.2 M   b)   0.01 M   c)   0.02 M   d) 0.04 M

10. Which of the following molecule contain no π bond?
    a) SO_2 b) NO_2 c) CO_2 d) H_2O

11. 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}

12. - I effect is shown by   a)   - Cl   b) - Br   c)   both (a) and (b)   d) -CH_3

13. Cis - 2 - butane and trans - 2 - butane are
    a)   conformational isomers   b)   structural isomers
    c)   Configurational isomers   d)   optical isomers

14. The raw material for Rasching process
    a)   Chloro benzene   b)   Phenol   c)   Benzene   d) Anisole

15. Bhopal Gas Tragedy is a case of --------
    a)   thermal pollution   b)   air pollution   c)   nuclear pollution   d) land pollution

PART – II

II.   **Answer any 6 questions. Question number 24 is compulsory.**   6X2=12
Answer any 5 from the remaining.

16. Find the oxidation number of oxygen in i. KO_2 ii. OF_2?

17. Define modern periodic law.

18. Explain Hydrogen bonding with their types
19. State Zeroth law of thermodynamics.
20. What is green chemistry?
21. Write Davison and Germer experiment
22. How does Huckel rule help to decide the aromatic character of a compound.
23. Explain inductive effect with suitable example.
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 - III

III   **Answer any six questions. Question No. 33 is compulsory.**   6x3=18

25. Write the actual electonic configuration of chromium and copper.
26. Write short notes on hard and soft water.
27. Give any three uses of alkali metals.
28. What is Entropy? Write Kelvin - Planck statement.
29. State Le-Chatlier's Principle.
30. What is hybridization?
31. Explain electrophilic substitution reaction?
32. Explain the term Aromaticity by Huckel's rule?
33. Give the preparation of Grignard reagent.

PART – IV

IV.   **Answer all the questions.** akwaacademy.blogspot.com   5X5=25

34. a. i. A Compound on analysis gave the following percentage composition C=54.55%, H=9.09%, O=36.36%. Determine the empirical formula of the compound.   (3)
    ii. State Aufbau principle? (2)   **(OR)**
   b. i. Explain Newland's law of octaves. (3)
    ii. H_2O_2 solutions are stored in plastic bottles not in glass container. Why? (2)

35. a. i. Explain the pauling method for the determination of ionic radius. (3)
    ii. How is plaster of paris prepared? (2)   **(OR)**
   b. Write the Van der Waals equation for a real gas. Explain the correction term for pressure and volume.   (5)

36. a. i. Derive the relation between enthalpy 'H' and internal energy 'U'. (3)
    ii. Distinguish between diffusion and effusion. (2)   **(OR)**
   b. List the characteristics of Gibbs free energy. (5)

37. a. i. Deduce the Vant Hoff equation. (3)
    ii. State Roult's law. (2)   **(OR)**
   b. i. Discuss the formation of N_2 molecule using MO Theory. (3)
    ii. State law of mass action. (2)

38. a. i. An organic compound (A) with molecular formula C_2H_5Cl reacts with KOH gives compounds (B) and with alcoholic KOH gives compound (C). Identify (A),(B), and (C)   (3)
    ii. Briefly explain geometrical isomerism in alkene by considering but-2-ene as an example. (2)   **(OR)**
   b. i. Compare S_N1 and S_N2 reaction mechanisms. (3)
    ii. 0.3 g of an organic compound on kjeldahl's analysis gave enough ammonia to just neutralize 30 mL of 0.1N H_2SO_4. Calculate the percentage of nitrogen in the compound. (2)