BOARD OF INTERMEDIATE EDUCATION: ANDHRA PRADESH

INTERMEDIATE 1ST YEAR – CHEMISTRY

MODEL QUESTION PAPER-1 (Effective from IPE MARCH 2026)

TIME : 3 HOURS] **[MAX. MARKS : 85**

SECTION-A

I Answer ALL the following questions.

Each question carries one mark. **9 × 1 = 9 Marks**

1. Which one of the following pairs of the compounds illustrate the law of multiple proportions?

   (1) H_2O & Na_2O (2) MgO & Na_2O (3) Na_2O & BaO (4) $SnCl_2$ & $SnCl_4$

2. Increasing order for the values of e/m for electron (e), proton (p), neutron (n) and α-particles is

   (1) e < p < n < α (2) n < α < p < e (3) n < p < e < α (4) n < p < α < e

3. Which of the following oxide, when dissolved in water form an acidic solution ?

   (1) Na_2O (2) CO (3) Al_2O_3 (4) Cl_2O_7

4. What is the shape of NH_4^+ ion ?

5. Work is done by the system and 'q' amount of heat is supplied to the system. What type of system would it be ?

6. What is the value of Kw at 25ºC ?

7. Reductant is the element which can reduce the other substances and itself undergoes_____.

8. Ethyl alcohol and methyl alcohol can be separated by _____.

9. The possible Isomers for C_4H_{10} are _____.

SECTION-B

II. Answer ALL the following questions.

Each question carries two marks. **14×2=28 Marks**

10. How many moles of glucose are present in 540 g of glucose ?

11. Calculate the volume of O_2 at STP required to completely burn 100 mL of acetylene.

12. What is the frequency of radiation of wavelength 600nm ?

13. What is Hund's rule ?

14. An element 'X' has atomic number 34. Give it's position in the periodic table.

15. Water is a liquid at room temperature, but hydrogen sulphide is a gas. Give reason.

16. What is meant by bond order ?

17. What are intensive and extensive properties ?

18. What is meant by dynamic equilibrium ?

19. What is disproportionation reaction? Give example.

20. What is the hybridization of carbon in CH_3F ?

21. What is distillation ?

22. What is Friedel-Crafts alkylation ?

23. Explain the structural isomerism with one example.

SECTION-C

III. Answer ANY EIGHT of the following questions.

Each question carries four marks. 8×4=32 Marks

24. A carbon compound contains 12.8% carbon, 2.1% hydrogen and 85.1% bromine. The molecular mass of the compound is 187.9 u. Calculate its molecular formula.

25. What is a nodal plane ? How many nodal planes are possible for 2p, and 3d orbitals ?

26. Give any four characteristic properties of transition elements.

27. Explain the structure of CH_4 molecule.

28. Explain the hybridisation involved in PCl_5 molecule.

29. Define heat capacity. What are C_p and C_v ? Show that $C_p - C_v = R$.

30. Define and explain the standard enthalpy of formation ($\Delta_f H^\theta$).

31. State Le Chateliers's Principle. Discuss the application of Le Chatelier's principle for the industrial synthesis of Ammonia by Haber's process.

32. Explain Lewis acids and bases with suitable examples. Classify the following species into Lewis acids and Lewis bases.

    a) OH^- b) F^- c) H^+ d) BCl_3

33. Balance the following redox reactions by ion-electron method (in acidic medium):

    $Cr_2O_7^{2-}$ (aq) + SO_3^{2-} (aq) $\longrightarrow$ Cr^{3+} (aq) + SO_4^{2-} (aq)

34. What are different types of organic reactions ?

35. What is dehydrohalogenation ? Write the equation for the formation of alkene from alkyl halide.

SECTION-D

IV. Answer ANY TWO of the following questions.

Each question carries eight marks. **2×8=16 Marks**

36. What are the postulates of Bohr's model of hydrogen atom ? Discuss the importance of this model to explain various series of line spectra in hydrogen atom.

37. Write an essay on s,p,d, and f-block elements.

38. Describe two methods of preparation of Ethylene. How does it reacts with the following. Give equations.

    a) Ozone b) Cold and dil.alk $KMnO_4$ c) Br_2

v v v