

**BOARD OF INTERMEDIATE EDUCATION**  
**JUNIOR INTER CHEMISTRY**  
**MODEL PAPER (ENGLISH VERSION)**

TIME: 3 HOURS

MAX.MARKS: 60

**SECTION – A**

I. i) Very Short Answer Type questions.

ii) Answer ALL questions.

ii) Each question carries TWO marks.

10 × 2 = 20

1. What is "Boltzman's constant"? Give its value.
2. All Bronsted bases are Lewis bases – Explain.
3. What are intensive and extensive properties?
4. The equilibrium constant for a reaction at 27°C is 10. Calculate  $\Delta G^\circ$  of the reaction (in Kilo Joules).
5. Explain the significance of Sodium and Potassium in biological fluids.
6. Calculate the mass of Sodium Carbonate required to prepare 250 ml of 0.5 N solution.
7. Why does the solubility of alkaline earth metal hydroxides in water increased down the group?
8. What is "Ozone hole"? Where was it first observed?
9. Name 2 oxides responsible for Green house effect? Name one ill effect of it.
10. Write structural formulae of  
a) Neo-pentane b) Tetra-tert. butyl methane

**SECTION – B**

II. i) Short Answer Type questions.

ii) Answer any SIX questions.

iii) Each question carries FOUR marks.

6 × 4 = 24

11. Deduce (a) Graham's law (b) Boyle's law from Kinetic gas equation.
12. Balance the following reaction by ion-electron method.



13. Derive the relation between  $K_c$  and  $K_p$  for the equilibrium reaction.



14. Explain 2 oxidising and 2 reducing properties of Hydrogen Peroxide.
15. Explain the difference in properties of diamond and graphite on the basis of their structure.

16. What is Borax? Explain the borax bead test with a suitable example.
17. Define hybridisation. Explain the structure of Sulphur hexa fluoride by hybridisation.
18. Calculate bond orders of  $N_2$  &  $O_2$ . Among  $N_2$ ,  $O_2$  name the molecule with strongest bond and the molecule with lowest bond dissociation energy.

### SECTION – C

#### III. i) Long Answer Type questions.

ii) Answer any TWO questions.

iii) Each question carries EIGHT marks.

$2 \times 8 = 16$

19. State 2 postulates and 2 limitations of Bohr's atomic model. Explain the different lines in various series of Hydrogen Spectrum with a neat diagram.
20. Define  $I.E_1$  and  $I.E_2$ . Why  $I.E_2$  is greater than  $I.E_1$ ? Discuss 4 factors affecting I.E. values of elements.
21. Explain the following with one suitable example each.
  - a) Wurtz reaction
  - b) Markownikov's rule
  - c) Ozonolysis of  $C_2H_2$ ,  $C_2H_4$
  - d) Friedel – Craft's alkylation