

# BOARD OF INTERMEDIATE EDUCATION

## JUNIOR INTER CHEMISTRY

### MODEL PAPER (English Version)

Time: 3 Hours

Max. Marks: 60

#### SECTION – A

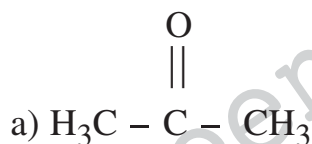
I. (i) Very Short Answer Type questions.

(ii) Answer ALL questions.

(iii) Each question carries TWO Marks.

10 × 2 = 20

1. What is 'Compressibility factor'? Give its value for ideal gas and real gas.
2. How many number of moles of glucose are present in 900 grams of glucose?
3. What is conjugate Acid – Base pair? Write conjugate acid and conjugate base for  $\text{OH}^-$  ion.
4. Why does the solubility of alkaline earth metal hydroxides in water increase down the group?
5. Give two uses of  $\text{Na}_2\text{CO}_3$ .
6. Define "BOD". Give the possible BOD values of clean water and polluted water.
7. Name two adverse effects caused by "Green house effect".
8. Diamond is hard and has high melting point. Explain why?
9. What is "Synthesis gas"?
10. Write IUPAC names of



#### SECTION – B

II. (i) Short Answer Type questions.

(ii) Answer any SIX questions.

(iii) Each question carries FOUR Marks.

6 × 4 = 24

11. Write 8 important postulates of kinetic molecular theory of gases.
12. A carbon compound contains 12.8% Carbon, 2.1% Hydrogen, 85.1% Bromine. The molecular weight of the compound is 187.9. Find the molecular formula of the compound.
13. Explain the terms
  - a) Entropy
  - b) Enthalpy
  - c) Extensive property
  - d) Intensive property
14. Derive the relation between  $K_C$  &  $K_P$  for the following equilibrium reaction
$$\text{H}_2(\text{g}) + \text{I}_2(\text{g}) \rightleftharpoons 2\text{HI}(\text{g})$$
15. Write about "Position isomerism" and "Functional isomerism" with one example each.
16. How would you prepare benzene from phenol and acetylene? Explain with equations.
17. Write 2 oxidising & 2 reducing properties of  $\text{H}_2\text{O}_2$ .
18. How does  $\text{B}_2\text{H}_6$  react with
  - a) CO
  - b)  $\text{NH}_3$
  - c)  $\text{H}_2\text{O}$
  - d)  $\text{N}(\text{CH}_3)_3$

### SECTION – C

III. (i) Long Answer Type questions.

(ii) Answer any TWO questions.

(iii) Each question carries EIGHT Marks.

$2 \times 8 = 16$

19. How are the quantum numbers  $n$ ,  $l$  and  $m_l$  arrived at? Explain the significance of these quantum numbers.
20. What is a periodic property? What is the reason for periodicity? How the following properties vary in a group and in a period? Explain.
  - a) Nature of oxides
  - b) Electronegativity
  - c) Ionization Enthalpy
21. a) Give four features of molecular orbital theory.  
b) Give molecular orbital energy diagram of  $\text{O}_2$ . Calculate its bond order.

Write the magnetic nature of  $\text{O}_2$  molecule.

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