

The Jammu and Kashmir State Board of School Education  
Academic Division New Campus, Bemina, Srinagar

Model Paper

CHEMISTRY(12<sup>th</sup>)

Max Marks: 70

Time: 3Hrs

SECTION A

**Long Answer Type Questions:**

1. What is solubility? Explain the effect of temperature and pressure on the solubility of gases in liquids.

**OR**

What is colligative property? How is the molecular mass of a solute calculated from elevation in boiling point? 1 gms of a non-electrolyte solute dissolved in 50g of benzene lowered the freezing point of benzene by 0.40 K. The  $K_b$  value of benzene  $5.12 \text{ K Kg mol}^{-1}$ . Find the molar mass of the solute. **5 marks**

2. Why molar conductivity of weak electrolytes cannot be calculated from extrapolation method? Explain how the molar conductivity of weak electrolytes is calculated from Kohlrausch's law?

**OR**

Depict a galvanic cell in which the reaction is



- (i) Which of the electrodes is negatively charged?  
(ii) What are the carriers of current in the cell?  
(iii) What is the individual reaction at each electrode?  
(iv) What are the functions of salt bridge? **5 marks**
3. Name the oxoacids of Phosphorus. Predict their basicity from their structure. Which of the two  $\text{H}_3\text{PO}_3$  and  $\text{H}_3\text{PO}_4$  is stronger?

**OR**

What are interhalogens? How are they produced? Give the structure of  $\text{IF}_7$ . **5marks**

4. How will you distinguish between?  
(i) Ethanol and acetone  
(ii) acetaldehyde and benzaldehyde  
(iii) Tollen's and Fehling's test?

**OR**

Describe the following.

- (i) Cannizaro's reaction  
(ii) Aldol condensation  
(iii) Cross Aldol condensation **5marks**

## SECTION B

### Short Answer Type Questions:

5. In a solid, there is defect due to missing of equal number of opposite ions from normal lattice site. **3 marks**
- (i) Which type of point defect is it?
- (ii) What are the effects of this defect on the density and stability of such solids?
- (iii) Name a solid which can have such defect.
6. What is meant by reaction rate? Give symbolic expression and units for the reaction **3 marks**
- $$\text{CO (g)} + \text{NO}_2 \text{ (g)} \xrightarrow{\square} \text{CO}_2 \text{ (g)} + \text{NO (g)}$$
7. Write the hybridization and also draw the molecular structure of following. **3 marks**
- $\text{XeF}_2, \quad \text{XeF}_4, \text{XeF}_6$
8. Briefly describe Freundlich adsorption isotherm. **3 marks**
9. How pure alumina is prepared from bauxite in Bayer's process? Give the reaction of each step. **3 marks**
10. Atomic radius of Cu is greater than Cr but ionic radius of  $\text{Cr}^{2+}$  is greater than  $\text{Cu}^{2+}$ . Why? **3 marks**
11. How will you distinguish between 1<sup>o</sup>, 2<sup>o</sup> and 3<sup>o</sup> alcohols by Victor Meyer's method? **3 marks**
12. Amines are basic in nature. Justify. **3 marks**

## SECTION C

### Very Short Answer Type questions:

13. Freons cause destruction of ozone layer. Explain. **2 marks**
14. Why  $\text{CN}^-$  and  $\text{SCN}^-$  are known as Ambident ligands? What type of isomerism is caused by such ligands? **2 marks**
15. Give cyclisation of Glucose. **2 marks**
16. What are fat soluble and water soluble vitamins? **2 marks**
17. Explain  $\text{S}_\text{N}2$  mechanism in alkyl halides. **2 marks**
18. What happens to natural rubber when it is heated with sulphur? What is the process known as? **2 marks**

19. What are antibiotics and antipyretics? Give Example? **2 marks**  
 20. What is lanthanide contraction? How it is caused? **2 marks**

**SECTION A**

**Very Short Answer Type Questions**

21. What is the effect of mechanical pressure on a piezoelectric crystal? **1 mark**  
 22. Give the units of zero order reaction. **1 mark**  
 23. What is CMC? **1 mark**  
 24. What is the coordination number of central metal atom in  $[\text{Fe}(\text{C}_2\text{O}_4)_3]^{3-}$ ? **1 mark**

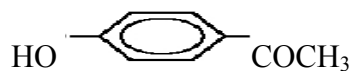


26. Give the reaction for converting acid chlorides to corresponding aldehydes.  
 Name the reaction. **1 mark**

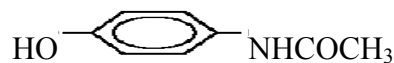
27. Name one biodegradable polymer. **1 mark**

28. The correct structure of drug paracetamol is **1 mark**

(i)



(ii)



(iii)



(iv)



29. A first order reaction is 75% complete after 32 minutes. When 50% of the reaction was complete? **1 mark**

- (i) 4 minutes  
 (ii) 8 minutes  
 (iii) 16 minutes  
 (iv) 32 minutes

30. Which of the following is the most basic compound. **1 mark**

- (i) Benzalamine  
 (ii) Aniline  
 (iii) Acidamide  
 (iv) Para nitro aniline