

HSEIRKO - 13

81018-Q

## CHEMISTRY

Section - A

(Long Answer Type Questions)

1. What do you understand by Elevation in boiling point? Derive the relationship between elevation in boiling point and molar mass of solute.

Or

Why do you sometimes get abnormal molecular masses of substances ? Give modified equations for the colligative properties for substances exhibiting abnormal molecular masses.

2. What is molar conductivity ? How is it related to concentration of the electrolyte? How will you account for weak and strong electrolytes ? <https://www.jkboseonline.com>

Or

State and explain Kohlrausch's law Give one important application of this law

3. Write the electronic configuration of the elements of group-15 Describe, briefly, Ionisation energies Electronegativity and oxidation states of elements of group-15.

Or

Describe the following about halogen family (Group-17 elements)

(i) Relative oxidising power.

(ii) Relative acidic strength of their hydrides.

(iii) Oxyacids and their relative oxidising ability

4. What are carboxylic acids? Give two methods of preparation of carboxylic acids Give the reactions of Acetic acid with:

(i) Alcohols (ii)  $P_2O_5$

Or

Give a brief account of the following reactions

(i) Cannizzaro's reaction

(ii) Clemmensen Reduction reaction

(iii) Friedel-Craft's Acylation

#### Section - B

(Short Answer Type Questions)

5. Explain Schottky defect in ionic solids

6. What is rate of a reaction ? Discuss briefly the effect of temperature on the rate of reaction

7. What are Emulsions ? How are they classified ?

8. Discuss briefly the oxidation states of 3d-transition series

9. What are co-ordination isomers ? Explain with suitable examples

10. Starting from bromo-ethane how will you get

(i) Nitroethane      (ii) Ethane      (iii) Ethylacetate

11. What are primary secondary and tertiary alcohols ? Explain with the two of examples

12. What are Vitamins ? What are the diseases caused due to deficiency of vitamin D and vitamin K ?

#### Section -C

(Very Short Answer Type Questions)

13. Define Activation Energy Why different reactions proceed at different speeds?

14. What is Roasting? Give an example

15. Give two examples of the compounds in which halogens show positive oxidation state.

16. What are the consequences of lanthanide contraction?

17. What are Nitriles and Isonitriles ? Give one method of preparation of Nitriles.

18. Discuss Hoffmann bromamide reaction

19. Distinguish between addition and Condensation Polymers with examples.

20. What are antibiotics? Give examples

#### Section - D

(Objective Type Questions)

- (i) Give one example of Ferrimagnetic substance.
- (ii) The speed of any chemical reaction is directly proportional to the molar concentration (True/False)
- (iii) Colloidal particles in a sol can be coagulated by:
- (a) Heating
- (b) Adding an electrolyte
- (c) Adding oppositely charged sol.
- (d) Any of the above methods
- (iv) Smelting involves reduction of metal oxide with
- (a) Carbon      (b) Carbon dioxide      (c) Magnesium      (d) Aluminium
- (v) The boiling points of halalkanes are in the order  $RCl < RBr < RI$  (True / False)
- (vi) Alcohols react with metal hydrides evolve..... gas . (Fill in the blanks)
- (vii) Formaldehyde react with Ammonia gives Hexamethylene tetra-amine. (True / False)
- (viii) Which one of the following is not a protein?
- (a) Wool      (b) Nail      (c) Hair      (d) DNA
- (ix) Caprolactum is the starting material for.
- (a) Nylon 6      (b) Terylene      (c) Nylon 6.6      (d) Nylon 6.10
- (x) Name the chemical substance which acts as antiseptic as well as disinfectant.

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