

## Chemistry (Sub./Gen.)

Answer six questions, selecting at least one from each Group, in which Q.No. 1 is compulsory.

1. Answer any three of the following : (a) Nuclear fission (b) Ostwald dilution law (c) Concept of resonance (d) Enthalpy of formation (e) Optical activity of lactic acid

### **Group-A**

2. State and explain Kohlrausch law of independent migration of ions and discuss its application.
3. Describe the phase diagram of sulphur system.
4. Discuss the following : (a) Isothermal process (b) Adiabatic process (c) Isobaric process (d) Isolated system

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### **Group-B**

5. What do you mean by coordination compounds ? Give two examples of such compounds. Describe the IUPAC rules for naming the coordination compounds.
6. (a) Name the different types of pollutions.  
(b) Describe the sources of water pollution. How can it be controlled ?
7. Why is fluorine different from other halogens ? How is fluorine obtained ? Discuss its applications.
8. (a) Name the different types of fertilisers.  
(b) Discuss the manufacture of Urea and DAP.

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### **Group-C**

9. (a) What do you mean by active methylene compound ?  
(b) Describe the synthesis of Malonic ester and its synthetic uses.
10. (a) Nitro group in nitrobenzene is meta orienting. Explain.  
(b) Hydroxy group in phenol is ortho/para orienting. Explain.  
(c) Discuss SN1 mechanism of substitution reaction.
11. (a) Discuss the structure of glucose.  
(b) Write notes on Killiani's synthesis.
12. Describe the synthesis of lactic acid, tartaric acid and citric acid.