

**0223****TS**

Total No. of Questions – 21

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Total No. of Printed Pages - 2

No.

**Part – III**  
**CHEMISTRY, Paper-II**  
(English Version)

**Time : 3 Hours]****[Max. Marks : 60****Note :** Read the following instructions carefully :

- (i) Answer **all** the questions of Section – A. Answer any **six** questions in Section – B and any **two** questions in Section – C.
- (ii) In Section – A, questions from Sr. Nos. **1 to 10** are of “Very Short Answer Type”. Each question carries **two** marks. Every answer may be limited to **two or three** sentences. Answer all these questions at one place in the same order.
- (iii) In Section – B, questions from Sr. Nos. **11 to 18** are of “Short Answer Type”. Each question carries **four** marks. Every answer may be limited to **75** words.
- (iv) In Section – C, questions from Sr. Nos. **19 to 21** are of “Long Answer Type”. Each question carries **eight** marks. Every answer may be limited to **300** words.
- (v) Draw labelled diagrams wherever necessary for questions in Sections – B and C.

**SECTION – A****10 × 2 = 20****Note :** Answer **all** the questions :

1. What is an Ideal Solution ?
2. Give two examples for zero order reactions.
3. Write any two ores with formulae of the following metals :
  - (a) Iron
  - (b) Copper
4. What is tailing of mercury ? How is it removed ?
5. Noble gases are inert. Explain.
6. Why  $\text{Zn}^{+2}$  is diamagnetic whereas  $\text{Mn}^{+2}$  is paramagnetic ?
7. What is Zwitter ion ? Give an example.
8. Write any two biological functions of Nucleic acids.
9. What are anti-biotics ? Give example.
10. What are anti-fertility drugs ? Give example.

**SECTION – B****6 × 4 = 24****Note :** Answer any six questions :

11. What is Relative Lowering of vapour pressure ? How is it useful to determine the molar mass of a solute ?
12. Describe the two main types of semi-conductors and contrast their conduction mechanism.
13. What are Lyophilic and Lyophobic sols ? Compare the two terms in terms of stability and reversibility.
14. Outline the principles of refining of metals by the following methods :
  - (a) Zone refining
  - (b) Poling
15. Write IUPAC names of the following coordination compounds :
  - (a)  $[\text{Cu}(\text{NH}_3)_4]\text{SO}_4$
  - (b)  $\text{K}_3[\text{Cr}(\text{C}_2\text{O}_4)_3]$
  - (c)  $[\text{Co}(\text{SCN})_4]^{-2}$
  - (d)  $[\text{PtCl}_2(\text{NH}_3)_2]$
16. Write the names of the monomers of the following polymers :
  - (a) Bakelite
  - (b) Polyvinyl chloride
  - (c) Polystyrene
  - (d) Teflon
17. Define the following :
  - (a) Racemic mixture
  - (b) Enantiomers
18. Write short notes on :
  - (a) Carbylamine reaction
  - (b) Sandmeyer reaction

**SECTION – C****2 × 8 = 16****Note :** Answer any two questions :

19.
  - (a) How is Nitric acid manufactured by Ostwald's process ?
  - (b) Write the reactions of  $\text{Cl}_2$  with the following :
    - (i)  $\text{H}_2\text{S}$
    - (ii)  $\text{I}_2$
    - (iii)  $\text{Ca}(\text{OH})_2$
    - (iv)  $\text{H}_2\text{O}$
20.
  - (a) Give a detailed account of the collision theory of reaction rates of bimolecular gaseous reactions.
  - (b) State Faraday's First Law of Electrolysis. A solution of  $\text{CuSO}_4$  is electrolysed for 10 minutes with a current of 1.5 amperes. What is the mass of copper deposited at the cathode ?
21. Explain the following :
  - (a) Acylation
  - (b) Esterification
  - (c) Gattermann-Koch Reaction
  - (d) Decarboxylation