223

II

Total No. of Questions – 21
Total No. of Printed Pages – 3

Regd. No.

Part – III

CHEMISTRY, Paper-II

(English Version)

Time : 3 Hours] **[Max. Marks : 60**

Note : Read the following instructions carefully :

(1) Answer **all** questions of Section – **'A'**. Answer any **six** questions from Section – **'B'** and any **two** questions from Section – **'C'**.

(2) 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.

(3) 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.

(4) 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.

(5) Draw labelled diagrams, wherever necessary for questions in Section – **'B'** and Section – **'C'**.

SECTION – A

10 × 2 = 20

Note : Answer **all** questions :

1. What are artificial sweetening agents ? Give example.
2. What is Zeigler-Natta Catalyst ?
3. Name two most familiar antioxidants used as food additives.
4. Write names of the monomers used for getting the polymers
   (a) Bakelite
   (b) Glyptal
5. What are colligative properties ? Give any one.

6. Identify the reaction order from each of the following rate constants :
   (a) $K = 2.3 \times 10^{-5}$ L mol^{-1} s^{-1}
   (b) $K = 3 \times 10^{-4}$ s^{-1}

7. What is the role of cryolite in the metallurgy of aluminium ?

8. Why Zn^{2+} is diamagnetic whereas Mn^{2+} is paramagnetic ?

9. Complete the following :
   (a) $XeF_4 + O_2F_2 \rightarrow$
   (b) $XeF_2 + H_2O \rightarrow$

10. Give the hybridization of sulphur in the following :
   (a) SO_2
   (b) SO_3
   (c) SF_4
   (d) SF_6

SECTION – B

$6 \times 4 = 24$

Note : Answer any **six** questions :

11. (a) What are amino acids ? Give two examples.
   (b) Write any two differences between Globular and fibrous proteins.

12. Explain the following with one example for each :
   (a) Wurtz reaction
   (b) Fittig reaction

13. Explain Werner's theory of co-ordination compounds with suitable examples.

14. How does PCl_5 react with the following :
   (a) Water
   (b) C_2H_5OH
   (c) CH_3COOH
   (d) Ag

15. Define the following with suitable examples :
   (a) Anti-ferromagnetism
   (b) Frenkel defect

16. State Henry's law. Calculate the mass of a non-volatile solute (molar mass 40 g mol^{-1}) which should be dissolved in 114 g of octane to reduce its vapour pressure to 80%.

17. What is catalysis ? How is catalysis classified ? Give one example for each of catalysis.

18. Write any **two** ores of the following metals :
    (a) Aluminium
    (b) Zinc
    (c) Iron
    (d) Copper

SECTION – C

$2 \times 8 = 16$

Note : Answer any **two** questions :

19. (i) Explain the following with suitable examples :
        (a) Conversion of alkylhalide to ether.
        (b) Conversion of phenol to salicylic acid.
    (ii) (a) How do you prepare carboxylic acid and alcohols from Grignard's reagent ? Give example.
        (b) What is carbylamine reaction ? Give example.

20. (i) State Faraday's first and second laws of electrolysis. A solution of $CuSO_4$ is electrolysed for 10 minutes with a current of 1.5 amperes. What is the mass of copper deposited at the cathode ?
    (ii) What is molecularity of a reaction ? How is it different from the order of a reaction ? Name one bimolecular and one trimolecular gaseous reactions.

21. (i) How does chlorine react with
        (a) acidified $FeSO_4$?
        (b) dry slaked lime ?
    (ii) Describe the manufacture of H_2SO_4 by contact process.