123

III

Total No. of Questions – 21
Total No. of Printed Pages – 2

Regd. No.

Part – III

CHEMISTRY, Paper-I

(English Version)

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

Note : Read the following instructions carefully :

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

$10 \times 2 = 20$

Note : Answer **all** questions :

1. Write two adverse effects caused by acid rains.
2. Define the terms 'Receptor' and 'Sink'.
3. What is surface tension ?
4. 4 grams of NaOH dissolved in 250 ml of the solution. Calculate Molarity.
5. Write the conjugate acid and conjugate base of each of the following :

   (a) HSO_4^- (b) H_2O

6. Give the biological importance of Na^+ and K^+ ions.
7. What is Plaster of Paris ? Write its uses.

8. Why is 'CO' poisonous ?

9. How is water gas prepared ?

10. Write IUPAC names of the following compounds :

(a) 

(b) 

SECTION – B

$6 \times 4 = 24$

Note : Answer any **six** questions :

11. Explain different types of hydrogen bonds with examples.

12. What is Hybridization ? Explain the structure of CH_4 on the basis of Hybridization.

13. State Graham's law of diffusion. 360 cm^3 methane gas diffused through a porous membrane in 15 minutes. Under similar conditions 120 cm^3 another gas diffused in 10 minutes. Find the molar mass of the second gas.

14. Balance the following Redox reaction by ion-electron method in acidic medium.

$$\underset{(aq)}{Cr_2O_7^{2-}} + \underset{(g)}{SO_2} \longrightarrow \underset{(aq)}{Cr^{3+}} + \underset{(aq)}{SO_4^{2-}}$$

15. State and explain the Hess law of constant heat summation with an example.

16. Discuss the application of Le Chatelier's principle for the industrial synthesis of Ammonia by Haber's process.

17. Explain the terms 'Hard water' and 'Soft water'. Write a note on 'Calgon method' for the removal of hardness of water.

18. Explain Borax bead test with suitable example.

SECTION – C

$2 \times 8 = 16$

Note : Answer any **two** questions :

19. Write the postulates of Bohr's model of hydrogen atom. Discuss the importance of this model to explain various series of line spectra in hydrogen atom.

20. What is periodic property ? How the following properties vary in a group and in a period ? Explain.

(a) Ionization Enthalpy (b) Electro-negativity (c) Metallic character

21. Describe two methods of preparation of Benzene. Explain Halogenation and Alkylation reactions of Benzene.