

0123
TS

A

Total No. of Questions – 21

Total No. of Printed Pages – 2

Regd.

No.

1	8	6	0	1	2	3	6	6	6
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Part - III
CHEMISTRY, Paper-I
(English Version)

Time : 3 Hours]

[Max. Marks : 60

Note : Read the following instructions carefully :

- Answer **all** questions of Section – ‘A’. Answer any **six** questions in Section – ‘B’ and answer any **two** questions in Section – ‘C’.
- 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.
- 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.
- 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.
- Draw labelled diagrams wherever necessary for questions in Sections – ‘B’ and ‘C’.

SECTION – A

10 × 2 = 20

Note : Answer **all** questions.

- State first law of thermodynamics.
- State Graham’s law of diffusion.
- Calculate the oxidation number of Manganese (Mn) in MnO_4^- ion.
- What is Lewis acid ? Give one example.
- Lithium reacts with water less vigorously than sodium. Give reason.
- What happens when magnesium metal is burnt in air ?
- What is Biochemical Oxygen Demand (BOD) ?
- Write IUPAC names of the following structures :
 - $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH} = \text{CH}_2$
 - $$\begin{array}{c} \text{O} \\ || \\ \text{CH}_3 - \text{CH}_2 - \text{C} - \text{CH}_3 \end{array}$$

9. Which gases cause Green House Effect ?
10. State Hess law of constant heat summation.

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

11. Write the postulates of kinetic molecular theory of gases.
12. Balance the following equation in acid medium by Ion-electron method :
- $$\text{Fe}_{(\text{aq})}^{+2} + \text{Cr}_2\text{O}_{7(\text{aq})}^{2-} \rightarrow \text{Fe}_{(\text{aq})}^{+3} + \text{Cr}_{(\text{aq})}^{+3}$$
13. Explain hybridisation of phosphorous in the formation of PCl_5 .
14. Discuss the application of Le-Chatlier's principle for the industrial synthesis of Sulphur trioxide (SO_3).
15. What is Hydrogen bond ? How many types ? Give one example each.
16. Write two oxidation and two reduction reactions of Hydrogen peroxide.
17. Explain the structure of Diborane.
18. Give hybridisation of carbon in
- (a) CO_3^{2-} (b) diamond (c) graphite (d) fullerene

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

19. What are the postulates of Bohr's model of hydrogen atom ? Explain the formation of lines in the Hydrogen spectrum.
20. How the following properties varies in a group and in a period ?
- | | |
|-----------------------|----------------------------|
| (a) Atomic radius | (b) Ionisation enthalpy |
| (c) Electronegativity | (d) Electron gain enthalpy |
21. Write any two methods of preparation of ethylene. How does it reacts with the following ?
- (a) Cold, dil. alk. KMnO_4
- (b) Br_2/CCl_4