

123

II

Total No. of Questions – 21

Regd.

Total No. of Printed Pages – 2

No.

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Part - III
CHEMISTRY, Paper-I
(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 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 diagram, wherever necessary for questions in Section – ‘B’ and ‘C’.

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

1. Define COD and BOD.
2. Name any two adverse effects caused by acid rains.
3. Give the hybridization of carbon in diamond and fullerene.
4. State the Hess’s law of constant heat summation.
5. State Graham’s law of diffusion.
6. The empirical formula of a compound is CH₂O. Its molecular weight is 90. Calculate the molecular formula.
7. Define Le Chatelier’s principle.
8. Define Entropy.

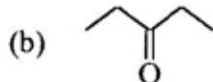
123 (Day-11)

1

P.T.O.

9. SiF_6^{2-} is known while SiCl_6^{2-} is not. – Explain.

10. Write the IUPAC names of the following :



SECTION – B

6 × 4 = 24

Note : Answer any **six** questions.

- Write any four postulates of kinetic molecular theory of gases.
- Explain the structure of Diborane.
- What is Hard water ? How can you remove hardness of water by Calgon method ?
- What is Hydrogen bond ? Explain different types of Hydrogen bonds with examples.
- What is conjugate Acid-Base pair ? Write the conjugate acid and conjugate base of NH_3 and H_2O .
- Compare dipole moment of NH_3 molecule with that of NF_3 molecule.
- Discuss various reactions that occur in Solvay process in the preparation of Na_2CO_3 .
- Balance the following reaction in acid medium by ion-electron method :



SECTION – C

2 × 8 = 16

Note : Answer any **two** of the following questions :

- What are quantum numbers ? Explain the four quantum numbers.
- Define IE_1 and IE_2 . Why $\text{IE}_2 > \text{IE}_1$ for a given atom ? Discuss any four factors that effect IE of an element.
- (a) Explain position isomerism and functional isomerism with examples.
(b) Complete the following reactions and name A, B and C :

