

123



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

Regd. No. 

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**Part - III**  
**CHEMISTRY, Paper - I**  
(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 **Section - B** and **Section - C**.

**SECTION - A**

**10×2=20**

**Note :- Answer *all* the questions.**

1. What are the coordination numbers of NaCl and CsCl crystals ?
2. What is the hybridisation of central atom in PCl<sub>5</sub> molecule ? What is the shape of the molecule ?

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3. What is Boltzmann Constant ? Give its value.
4. What volume of  $\text{CO}_2$  is liberated at STP by heating 4 gram of  $\text{CaCO}_3$  ?
5. Write any two uses of Heavy Water.
6. In which segment of the atmosphere Ozone is present ? What is the advantage of Ozone Layer ?
7. What is Threshold Limit Value (TLV) ?
8. What are Ultramarines ? Give example.
9. How is Ethylene prepared from Ethyl alcohol ? Write equation.
10. Write the functional isomers of molecular formula  $\text{C}_3\text{H}_6\text{O}$ .

**SECTION - B**

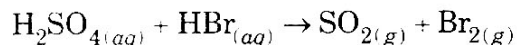
**6×4=24**

*Note :- Answer ANY SIX questions.*

11. Write any four postulates of 'Kinetic molecular theory' of gases.
12. Explain the electrolytic method of preparation of Hydrogen peroxide. Give diagram. Write electrode reactions.
13. What is Water gas ? How is it prepared ?
14. Explain the preparation of Sodium hydroxide by Nelson Cell method. Draw diagram.
15. Explain  $sp^3$  hybridization with example.

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16. Explain the structures of  $\text{XeF}_4$  and  $\text{XeF}_6$ .
17. Balance the following equation by Ion-electron method.



18. What is Moissan Boron ? How Boron reacts with the following ?

Write equations.

- (a)  $\text{SiO}_2$
- (b) Conc.  $\text{H}_2\text{SO}_4$

**SECTION - C**

**2×8=16**

**Note :** Answer **ANY TWO** questions.

19. (a) Write the postulates of Bohr's Atomic Model.
- (b) Explain de Broglie's hypothesis and how it justifies Bohr's atomic theory.
20. Define First and Second Ionization Potentials. Why the second ionisation potential is greater than first ionisation potential ? Explain any four factors that affects the ionisation potential of elements.
21. Give any two methods of preparation of Acetylene. Give equations. How does acetylene reacts with the following ? Write equations.
- (a)  $\text{H}_2\text{O} / \text{Hg}^{2+}$  (30%  $\text{H}_2\text{SO}_4$ )
- (b) Ozone
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