123 123-330641 **I**

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.

(i) Answer all questions of Section-A. Answer any six questions out of eight questions from Section-B and answer any two questions out of three questions from 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 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 questions :

1. Lithium salts are mostly hydrated. Why?
2. What is Chemical Oxygen Demand (COD)?
3. Which oxides cause acid rain and what is its pH value?
4. State Dalton's Law of Partial Pressure.
5. The empirical formula of a compound is CH_2O. Its molecular weight is 90. Calculate the molecular formula of the compound.
6. What is meant by ionic product of water?
7. What happens when magnesium metal is burnt in air?

8. What are intensive and extensive properties?

9. State the Third Law of Thermodynamics.

10. How do you prepare ethyl chloride from ethylene?

SECTION – B

6×4=24

Note :- Answer any six questions :

11. Deduce (a) Boyle's Law and (b) Charles Law from Kinetic Gas Equation.

12. Balance the following redox reaction by ion-electron method.

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

(in acidic medium)

13. Explain the hybridization involved in PCl_5 molecule.

14. What is Hydrogen bond? Explain the different types of Hydrogen bonds with examples.

15. Derive the relation between K_p and K_c for the equilibrium reaction.

$$N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$$

16. Write a few lines on the utility of hydrogen as a fuel.

17. Explain borax bead test with a suitable example.

18. Explain the difference in properties of diamond and graphite on the basis of their structure.

SECTION – C

2×8=16

Note :- Answer any two questions :

19. What are 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. Define IE_1 and IE_2. Why is $IE_2 > IE_1$ for a given atom? Discuss the factors that affect IE of an element.

21. Give two methods of preparation of acetylene. How does it react with Water and Ozone?
