

0123

(TS)

B

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 questions of Section 'A'. Answer any six questions in Section 'B' and answer 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 2 or 3 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 Sections 'B' and 'C'.

SECTION A

10 × 2 = 20

Note : Answer all questions.

1. Name two adverse effects caused by acid rains.
2. What is Chemical Oxygen Demand (COD)?
3. Write the functional isomers of organic compound C_3H_6O .
4. Define inert pair effect.
5. Write the biological importance of Na^+ ions.
6. What is meant by ionic product of water? What is its value at room temperature?
7. Calculate the kinetic energy of 5 moles of nitrogen at $27^\circ C$.

8. Calculate the oxidation number in $Cr_2O_7^{2-}$ ion on chromium (Cr) atom.
9. What is Plaster of Paris?
10. Give the formula of borazine. What is its common name?

SECTION B

6 × 4 = 24

Note : Answer any six questions.

11. Write the postulates of Kinetic Molecular Theory of Gases.
12. A carbon compound contains 4.07% hydrogen, 24.27% carbon and 71.65% chlorine. Its molar mass is 98.96 gm. What are its empirical and molecular formulas?
13. a) State the third law of thermodynamics.
b) Define entropy.
14. Explain the concept of Bronsted Lowry acid base theory with suitable examples.
15. Explain with suitable examples of the following :
a) Electron – deficient hydrides
b) Electron – rich hydrides
16. Explain the differences in properties of diamond and graphite on the basis of their structures.
17. Explain Wurtz reaction and Friedel – Crafts alkylation with examples.
18. What is polymerization? Explain with one example.

SECTION C

2 × 8 = 16

Note : Answer any two questions.

19. a) What are the postulates of Bohr's model of hydrogen atom?
b) Explain the significance of 'n' and 'l' quantum numbers.
20. What is hybridization? Explain sp , sp^2 and sp^3 hybridizations with one example each.
21. 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.