123

III

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 **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. Write any two adverse effects of global warming.

2. Define the sink and receptor.

3. Write the effect of temperature on surface tension and viscosity. Give reason to that.

4. Calculate the oxidation number of $'Cr'$ in $K_2Cr_2O_7$.

5. Define the ionic product of water.

6. What is plaster of Paris?

7. Write any four uses of CO_2 gas.

8. Why are alkali metals not found in the free state in nature?

9. Why the graphite is good conducter of electricity?

10. What is the type of hybridization of each carbon in the following compound?

$HC \equiv C - CH = CH_2$

SECTION B

$6 \times 4 = 24$

Note : Answer **any six** questions.

11. State and explain Graham's law of diffusion.

12. A carbon compound contains 12.8% carbon, 2.1% hydrogen, 85.1% bromine. The molecular weight of the compound is 187.9. Calculate the molecular formula (*At. wt* $C = 12$, $H = 1$, $Br = 80$).

13. What is hydrogen bond? Explain the different types of hydrogen bonds with examples.

14. State and explain Hess's law of constant heat summation. Give an example.

15. What are homogenous and heterogenous equilibria? Give two examples of each.

16. Write any four uses of dihydrogen (H_2).

17. Explain the structure of diborane.

18. Define the dipole moment. Why the BF_3 molecule dipole moment is zero?

SECTION C

$2 \times 8 = 16$

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. Write the classification of elements into s, p, d and f blocks in long form of periodic table.

21. Write the following reactions with equations.
    a) Wurtz's reaction
    b) Polymerization of ethylene
    c) Addition of water to acetylene
    d) Nitration of benzene