123

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** the 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 diagrams, wherever necessary, for questions in Section – 'B' and Section – 'C'.

SECTION – A $10 \times 2 = 20$

Note : Answer all questions :

1. Why KO_2 paramagnetic ?

2. Describe the importance of plaster of paris.

3. H_2O has a higher boiling point than that of H_2S. Give reasons.

4. State First Law of thermodynamics.

5. State Graham's law of diffusion.

6. Calculate the weight of 0.1 mole of Sodium carbonate.

7. What is Bronsted base ? Give an example.

8. Write the structures of (a) trichloro ethanoic acid (b) Neopentane.

9. Give two uses of Aluminium.

10. Boron is unable to form BF_6^{3-} ion. Explain.

SECTION – B

$6 \times 4 = 24$

Note : Answer any six questions :

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

12. Write in brief on (i) ionic hydrides (ii) interstitial hydrides.

13. State and explain Hess's law with example.

14. Derive the relation between K_p and K_c for the equilibrium.

$$N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$$
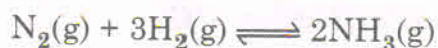
15. Balance the following redox reaction by ion – electron method in acidic medium :

$$MnO_4^-(aq) + SO_2(g) \longrightarrow Mn^{2+}(aq) + HSO_4^-(aq)$$

16. Deduce Boyle's law and Charles' law from kinetic gas equation.

17. Explain the hybridisation in SF_6.

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

SECTION – C

$2 \times 8 = 16$

Note : Answer any two questions :

19. Give two methods of preparation of benzene. Explain halogenation and alkylation of benzene.

20. Explain Quantum numbers.

21. Define IE_1 and IE_2. Why $IE_2 > IE_1$ for a given atom ? Discuss the factors that effect IE of an element.