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** 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. What is Plaster of Paris ? Write its uses.
2. What Agro chemicals are responsible for water pollution ?
3. Name the common components of photo chemical smog.
4. Potassium carbonate cannot be prepared by Solvay process. Why ?
5. What is the effect of pressure on a gaseous chemical equilibrium ?
6. What are Extensive and Intensive properties ?
7. State the 3rd law of thermodynamics.
8. Calculate the amount of Carbon dioxide that could be produced when one mole of Carbon is burnt in 16 g of dioxygen.
9. Calculate the ratio of kinetic energies of 3 g of H_2 and 4 g of O_2 at a given temperature.

10. Write IUPAC names of the following compounds :

(a) $(CH_3)_2C(C_2H_5)_2$

(b) $CH_3 - CH_2 - CH(CH_2 - CH_3) - CH_2 - CH(CH_3) - CH_2 - CH_3$

SECTION – B

$6 \times 4 = 24$

Note : Answer any **six** questions :

11. Deduce (a) Charles' law (b) Graham's law of diffusion from kinetic gas equation.

12. Balance the following redox reaction in basic medium by ion-electron method :

$$MnO^-_{4\,(aq)} + I^-_{(aq)} \longrightarrow MnO_{2(S)} + I_{2(S)}$$

13. What is a conjugate acid-base pair ? Write the conjugate acid and conjugate base of each of the following :

(a) OH^-

(b) HCO^-_3

14. Explain the following with suitable examples :

(a) Electron deficient hydrides

(b) Ionic hydrides

15. Explain the structure of diborane.

16. What do you understand by

(a) Allotropy

(b) Inert pair effect

17. Describe any two methods of preparation of Ethane.

18. Write the reactions of Ethylene with the following :

(a) Ozone

(b) Cold, dilute alk. $KMnO_4$

SECTION – C

$2 \times 8 = 16$

Note : Answer any **two** questions :

19. (a) What are postulates of Bohr's model of Hydrogen atom ?

(b) State Hund's rule and Aufbau principle.

20. Write an essay on s, p, d and f-block elements.

21. (a) Explain the hybridisation involved in SF_6.

(b) State Fajan's Rules and give suitable examples.