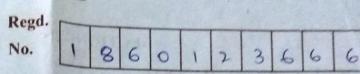
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Total No. of Questions – 21
Total No. of Printed Pages – 2



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 in Section 'B' and answer any two questions in 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 questions 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 Sections 'B' and 'C'.

## SECTION - A

 $10 \times 2 = 20$ 

Note: Answer all questions.

- 1. State first law of thermodynamics.
- 2. State Graham's law of diffusion.
- 3. Calculate the oxidation number of Manganese (Mn) in MnO<sub>4</sub> ion.
- 4. What is Lewis acid? Give one example.
- 5. Lithium reacts with water less vigorously than sodium. Give reason.
- 6. What happens when magnesium metal is burnt in air?
- 7. What is Biochemical Oxygen Demand (BOD)?
- 8. Write IUPAC names of the following structures:

(a) 
$$CH_3 - CH_2 - CH_2 - CH = CH_2$$

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- 9. Which gases cause Green House Effect?
- 10. State Hess law of constant heat summation

## SECTION-B

 $6 \times 4 = 24$ 

Note: Answer any six questions.

- 11. Write the postulates of kinetic molecular theory of gases.
- 12. Balance the following equation in acid medium by Ion-electron method:  $Fe_{(aq)}^{+2} + Cr_2O_{7(aq)}^{-2} \rightarrow Fe_{(aq)}^{+3} + Cr_{(aq)}^{+3}$
- 13. Explain hybridisation of phosphorous in the formation of PCl<sub>5</sub>.
- 14. Discuss the application of Le-Chatlier's principle for the industrial synthesis of Sulphur trioxide (SO<sub>3</sub>).
- 15. What is Hydrogen bond? How many types? Give one example each.
- 16. Write two oxidation and two reduction reactions of Hydrogen peroxide.
- 17. Explain the structure of Diborane.
- 18. Give hybridisation of carbon in
  - (a)  $CO_3^{-2}$
- (b) diamond
- (c) graphite
- (d) fullerene

## SECTION - C

 $2 \times 8 = 16$ 

Note: Answer any two questions.

- 19. What are the postulates of Bohr's model of hydrogen atom? Explain the formation of lines in the Hydrogen spectrum.
- 20. How the following properties varies in a group and in a period?
  - (a) Atomic radius

(b) Ionisation enthalpy

(c) Electronegativity

- (d) Electron gain enthalpy
- 21. Write any two methods of preparation of ethylene. How does it reacts with the following?
  - (a) Cold, dil. alk. KMnO<sub>4</sub>
  - (b) Br<sub>2</sub>/CCl<sub>4</sub>

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