



13DD 44 – I (09)

B.Sc. I Semester Degree Examination, December 2013
Paper – I : CHEMISTRY

Time : 3 Hours

Max. Marks : 80

- Instructions :** 1) Question paper has **four** Sections. **All** Sections are **compulsory**.
2) Answer for **all** Sections should be written in the **same** answer book.

SECTION – A
(Inorganic, Organic and Physical)

1. Answer **any ten** of the following : (10×2=20)
- a) What are the shapes of "P"-orbitals ? 2
 - b) What is Ionic radius ? 2
 - c) Define Acid-base titration. 2
 - d) Explain the term EDTA. 2
 - e) What is meant by Pauli-exclusion principle ? 2
 - f) Define homolytic bond cleavage. 2
 - g) What is isomerism ? Give example of C₅ in alkane. 2
 - h) Write the IUPAC name of :
 - 1)
$$\begin{array}{c} \text{CH}_3 \\ | \\ \text{CH}_3 - \text{C} - \text{CH}_2 - \text{CH}_2 - \text{Br} \\ | \\ \text{H} \end{array}$$
 2
 - 2)
$$\begin{array}{c} \text{CH}_3 \\ | \\ \text{CH}_3 - \text{CH} - \text{C} \equiv \text{CH} \\ | \\ \text{CH}_3 \end{array}$$
 2
 - i) What is peroxide effect ? 2
 - j) What is chloroprene ? 2

P.T.O.



- k) Define mean free path. 2
- l) What is average velocity? 2
- m) What is law of rationality of indices? 2
- n) What is redox titration? 2
- o) Define gold number. 2

SECTION – B

(Inorganic)

2. Answer **any two** of the following : (2×4=8)
- a) Discuss the Aufbau principle with examples. 4
- b) Define electron affinity. Explain the periodic variations. 4
- c) What is acid-base titration? Explain with example. 4
3. Answer **any two** of the following : (2×6=12)
- a) Write a note on Hund's multiplicity rule with example. 6
- b) Define anionic radii and explain ionisation energy in periodic table. 6
- c) What is an indicator? Give an account of redox indicators. 6

SECTION – C

(Organic)

4. Answer **any two** of the following : (2×4=8)
- a) Explain what are electrophiles and nucleophiles. 4
- b) Write a note on Wurtz reaction and Kolbes reaction. 4
- c) Give any two methods of synthesis of alkenes with examples. 4



5. Answer **any two** of the following :

(2×6=12)

a) Write a note on :

6

a) Addition reaction

b) Substitution reaction.

b) Explain mechanism of electrophilic addition reactions of alkynes with HCN and Br₂.

6

c) What is Markownikoff's rule ? Explain with examples.

6

SECTION - D
(Physical)

6. Answer **any two** of the following :

(2×4=8)

a) Explain PV-isotherm of real gases.

4

b) State law of symmetry and explain the element of symmetry in crystals.

4

c) What are colloids ? Explain coagulation of colloids.

4

7. Answer **any two** of the following :

(2×6=12)

a) State and derive the expression for the law of corresponding states from Van der Waals equation.

6

b) What are emulsions ? How are they classified ? Give examples.

6

c) What are liquid crystal ? Explain difference between liquid crystal solid and liquids.

6