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SA—12—2025

FACULTY OF SCIENCE

B.Sc. (Second Year) (Fourth Semester) EXAMINATION

MARCH/APRIL, 2025

CHEMISTRY

(Organic and Inorganic Chemistry-VIII)

(Wednesday, 9-4-2025)

Time : 2.00 p.m. to 4.00 p.m.

Time—2 Hours

Maximum Marks—40

N.B. :— Attempt *all* questions.

1. Solve any *three* of the following : 15
- (a) Explain the separation of Lanthanide series elements by ion exchange method.
 - (b) Give comparison between Lanthanides and Actinides.
 - (c) Give the general characteristics of 'd'-block elements.
 - (d) Compare the atomic of ionic radii properties of second and third transition series elements with first transition series elements.
 - (e) Give the outermost electronic configuration of actinide series elements.

P.T.O.

2. Solve any *three* of the following : 15

(a) What is stereoisomerism ? Give the 'R' and 'S' configuration of the following compounds :

(i) Bromochloriodomethane

(ii) 1-Phenylethanol.

(b) What are carbohydrates ? How are they classified ?

(c) What are aromatic nitro compounds ? How will you prepare nitrobenzene from benzene ? Give any *three* physical properties of nitrobenzene.

(d) Discuss the conformational analysis of *n*-butane.

(e) How will you prepare Selenium dioxide from Metallic selenium ? What is action of SeO_2 on the following :

(i) CH_3CHO

(ii) CH_3COCH_3

(iii) $\text{C}_6\text{H}_5\text{CH}_2\text{OH}$

(iv) CH_3COOH

3. Solve any *two* of the following : 10

- (a) How will you convert glucose to fructose ?
- (b) What is structural isomerism ? Give *cis* and *trans* forms.
- (i) 2-Butene
- (ii) 1, 2-dibromoethene
- (c) How will you prepare Aniline from
- (i) Chlorobenzene
- (ii) Phenol
- (iii) Nitrobenzene

Explain the following chemical reactions of Aniline :

- (i) Action of Benzoylchloride
- (ii) Formation of P-Nitroacetanilide.
- (d) Explain open chain structure of Glucose.