Q. 1 Select and write the most appropriate answer from the given alternatives for each sub-question. [8]

(i) Which of the following is first oxidation product of secondary alcohol?
(a) Aldehyde (b) Ketone (c) Carboxylic acid (d) Alkene

(ii) Ibuprofen is used as a .......... .
(a) Antibiotic  (b) Antiseptic (c) Analgesic (d) Antacid

(iii) Grignard's reagent is prepared by action of magnesium metal on .......... .
(a) Alcohol  (b) Phenol (c) Alkyl halide (d) Benzene

(iv) Which of the following compounds contains hydrogen bonds?
(a) Ethane  (b) Ethanol (c) Methoxymethane (d) Ethylene

(v) Hydrolysis of esters in alkaline medium is called as .......... .
(a) Etherification  (b) Hydration (c) Saponification (d) Esterification

(vi) A test which can NOT be used to detect proteins is .......... .
(a) Carbylamine test  (b) Biuret test (c) Xanthoproteic test (d) Millon's test

(vii) In lanthanides the differentiating electron enters .......... orbital.
(a) ns  (b) np  (c) (n - 2)f  (d) (n - 1)d

(viii) The number of isomeric amines of C₃H₇N is .......... .
(a) 3  (b) 4  (c) 5  (d) 6

Q. 2 (A) Attempt any One:

(i) Define Fibre. Give the structural formula and IUPAC name of iso-butyl bromide. (2)
(ii) What is the action of Na – Hg/H₂O on (a) Acetaldehyde, (b) Glucose? (2)

(B) Attempt any One:

(i) What are lanthanones? Give names and symbols of any 'two' rare earths. (2)
(ii) How is chloroform converted into
(a) Phosgene  (b) Chloropicrin

(C) Answer the following:

(i) Starting from Ca salts of fatty acids, write preparation of
(a) Acetaldehyde  (b) Acetone
(ii) Distinguish between Oils and Fats. (2)

Q. 3 (A) Attempt any One:

(i) Explain the terms:
(a) Enantiomers, (b) Plane polarized light, (c) Asymmetric carbon atom. (3)
(ii) Write chemical test to distinguish between propan-1-ol, propan-2-ol and 2-methyl, propan-2-ol. (3)

(B) Attempt any One:

(i) What is the action of following reagents on ethyl iodide?
(a) Aqueous KOH  (b) Alcoholic KCN  (c) Silver acetate
(ii) Write a note on Williamson's Synthesis. Mention 'two' uses of y ethane. (3)

(C) Answer the following:

Explain, why does lanthanum form La³⁺ ion, while cerium forms Ce⁴⁺ ion. (2)
Q. 4 (A) Answer the following
What are phenols? How is carbolic acid prepared from aniline?
Write a chemical test to distinguish between alcohol and phenol.

(B) Attempt any One:
(i) Identify A, B, C and D. Write the complete reactions.
\[
\text{CH}_3\text{CN} + \text{Na} + \text{R} \rightarrow \text{A} \rightarrow \text{B} \rightarrow \text{C} \rightarrow \text{D}
\]
(ii) Convert the following:
(a) Dry ice into acetic acid
(b) Ethyl acetate into acetone

Q. 5 (A) Attempt any One:
(i) Write a note on aldol condensation.
(ii) Explain the mechanism of alkaline hydrolysis of t-butyl bromide with energy profile diagram.

(B) Attempt any Two:
(i) Write ‘two properties’ and ‘two uses’ of nylon-6.
(ii) How is glucose prepared from sucrose?
(iii) What are
(a) Antioxidants
(b) Antiseptics?