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SA—08—2025

FACULTY OF SCIENCE

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

APRIL/MAY, 2025

(CBCS/New Pattern)

CHEMISTRY

Paper-VI

(Organic and Inorganic Chemistry)

(Tuesday, 8-4-2025) **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 : 3×5=15

   (*a*) Discuss precipitation reaction of liquid NH_3.

   (*b*) How will you separate Cu^{++} and Cd^{++} ions in qualitative analysis ?

   (*c*) Explain the role of 8-hydroxyqunoline in qualitative analysis.

   (*d*) What are interfering radicals ? Explain the removal of phosphate and oxalate.

   (*e*) What are non-aqueous solvents ? Give classification of solvents.

2. Solve any *three* of the following : 3×5=15

   (*a*) Explain Benzoin Condensation reaction with mechanism.

P.T.O.

(*b*) How will you prepare :

(*i*) Benzoic acid from Toluene

(*ii*) Anthranilic acid from Phthalimide.

(*c*) Describe Baeyer Villiger oxidation reaction with mechanism.

(*d*) How will you synthesize Ethyl acetoacetate by Claisen condensation reaction ? Explain with mechanism.

(*e*) What are synthetic detergents ? How are they classified ?

3. Solve any *two* of the following : 2×5=10

(*a*) Explain reduction of aldehydes or ketones with $LiAlH_4$ with mechanism.

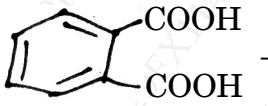
(*b*) How will you prepare Methyl magnesium bromide ? How will you obtain the following from methyl magnesium bromide :

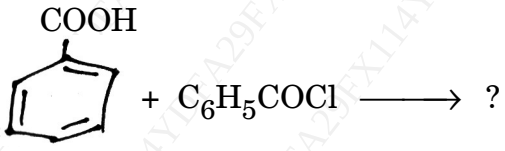
(*i*) Ethanoic acid

(*ii*) Acetonitrile.

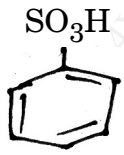
(*c*) Explain Trans-Esterification and Hydrolysis reactions of oils or fats.

(*d*) Complete the following reactions :

(*i*) 

(*ii*) 

(*iii*)  + Conc $H_2SO_4 \longrightarrow$?

(*iv*) 

$\xrightarrow[(ii)\ C_2H_5OH]{(i)\ PCl_5}$?

(*v*) 

+ $HNO_2 \longrightarrow$?