

B.Sc. Semester - 4 (CBCS) Examination
March/April-2024 [NEW COURSE]
Chemistry-C401(Core)

Time: 2:30 Hours

Marks: 70

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

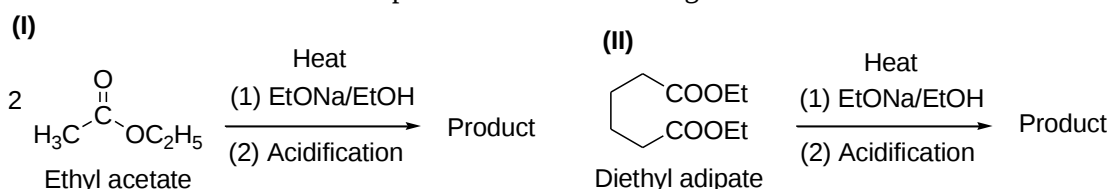
Que.1(A) Answer the following question. (04)

- (1) Give the classification of organometallic compounds based on nature of M-C bond.

Que.1(B) Answer the following questions. (Any two) (10)

- (1) Discuss importance of Chlorophyll.
- (2) Discuss bonding and structure in dimeric form of trimethyl aluminum.
- (3) Explain (i) Ionization isomerism (ii) Linkage isomerism

Que.2(A) Draw structures and name of the products for the following two reactions. (04)



Que.2(B) Answer the following questions. (Any two) (10)

- (1) Write Nucleophilic addition reaction of carbonyl compounds with HCN and ROH.
- (2) Discuss Aldol condensation with reaction mechanism.
- (3) Give any five preparation methods for monocarboxylic acid.

Que.3(A) Answer the following question. (04)

- (1) Calculate the work done when one mole of the gas is expanded reversibly and isothermally from 4 atm. to 2 atm. at 25°C. (R = 8.314)

Que.3(B) Answer the following questions. (Any two) (10)

- (1) Define Surface tension. Explain effect of temperature on surface tension.
- (2) Define Heat capacity. Derive the relationship between Cp and Cv for an ideal gas.
- (3) Discuss application of dipole moment.

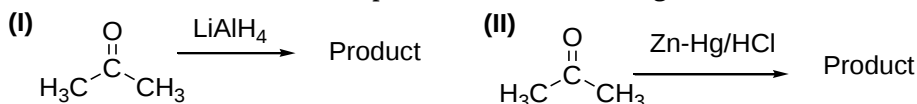
Que.4(A) Answer the following question. (04)

- (1) Write note on toxicity of mercury.

Que.4(B) Answer the following questions. (Any two) (10)

- (1) Explain geometrical isomerism in coordination number four.
- (2) Explain Beckmann rearrangement with mechanism.
- (3) Discuss Ostwald's viscometer.

Que.5(A) Give structure and name of the product for the following two reactions. (04)



Que.5(B) Answer the following questions. (Any two) (10)

- (1) Discuss application of coordination compounds.
- (2) Discuss acidic and basic hydrolysis of ester.
- (3) Derive the relationship for pressure and volume for adiabatic process.
