

B.Sc. Semester - 3 (NEP-2020) Examination

OCT/NOV-2024

CHE: Intermediate Chemistry-206 (Major-6)

Time: 2:00 Hours

Marks: 50

Instructions:

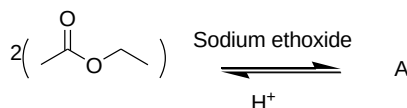
1. All questions are compulsory.
2. Figures to the right indicate marks.

Que-1 Answer any two out of three questions given.**(10)**

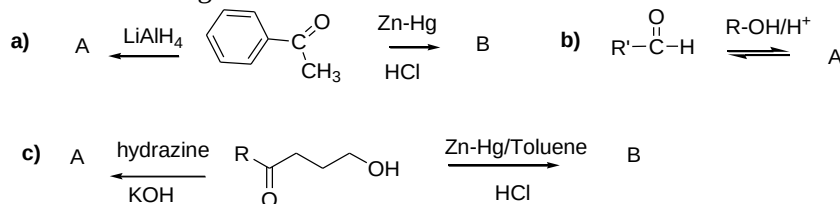
- 1) Give Schrodinger wave equation and potential energy for H_2^+ .
- 2) What is fertilizer? Give detailed classification and use of various types of fertilizers.
- 3) Answer the following a and b.
 - a) What is eigen function and eigen value?
 - b) Explain normalized wave function.

Que-2 Answer any two out of three questions given.**(10)**

- 1) Explain acidity of carboxylic acid based on stability of carboxylate ion. Also discuss effect of substituent on the acidity of carboxylic acid with suitable examples.
- 2) Answer the following as directed.
 - a) Write product for the following conversion and also write statement if it is known named reaction.



- b) Write reaction for the preparation of Butan-2-enoic acid from appropriate acetoacetic ester.
- 3) Complete the following reaction

**Que-3 Answer any two out of three questions given.****(10)**

- 1) Prove C_p and $C_v = R$ for an ideal gas.
- 2) Explain measurement of viscosity by Ostwald's viscometer.
- 3) Explain Joule Thomson effect.

Que-4 Answer any two out of three questions given.**(10)**

- 1) Explain the method of graphical representation of three component partially miscible liquid.
- 2) Write a note on RCC.
- 3) Explain mechanism of formation of crotonaldehyde from acetaldehyde.

Que-5 Answer any two out of four questions given.**(10)**

- 1) Explain postulates of wave mechanics.
- 2) Describe two component partially miscible liquid pair.
- 3) Write factors responsible for the characteristic chemical properties of aldehyde and ketone. Also write addition reaction of acetaldehyde with Hydrogen cyanide, sodium bisulphite and Grignard reagent.
- 4) One mole of an ideal gas at 25° is allowed to expand reversibly at constant temperature from a volume of 10 liters to 20 litres. Calculate the work done by the gas in joules and calories. ($R=8.314 \text{ Joule mole}^{-1} \text{ K}^{-1}$)
