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T.D.C. Part-I (Hons)

 **Ethyl amine**

H H

 **| |** H

 **SF:**H **-**C-C-N

 | | H

 H H

 **MF:**  CH3-CH2-NH2

 **FG:** -NH2

 **IUPAC NAME:**Amino ethane or ethanamine

 **Preparation:**

**1.Hofmann Bromide reaction:** Propanamide reacts with Br2 and NaOH and then gives ethyl amine.

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CH2-CH2-C-NH2 + Br2 + + 4NaOH → CH3-CH2-NH2 + 2NaBr + Na2CO3 + 2H2O

 propanamide ethyl amine

**2.** On reduction with HCN in presence C2H5OH/Na then gives ethyl amine.

 H

 | H

CH3-C$≡$N + 4(H) $→$ CH3-C -N

 | H

 H

 ethyl amine

**Properties:**

1. It is gases.
2. It is colourless.

3.Amine are soluble in water.

1. **Reaction with HNO2 :** Ethyl amine reacts with HNO2 and then gives ethyl alcohol.

CH3-CH2-NH2 + HO.NO → CH3-CH2-OH + N2 + H2O

1. **Reaction with ethyl chloride:** Ethyl amine reacts with ethyl chloride and then give diethyl amine.

CH3NH2 + Cl-CH3 → CH3-CH2-NH-CH2-CH3 + HCl

1. **Reaction with Grignard reagent:** Ethyl amine reacts with Grignard reagent and then give methane.

CH3 –CH2 – NH2 + CH3-Mg-Br → CH3-H + CH3-CH2 -NH-MgBr

1. **Reaction with HCl:** Ethyl amine reacts with HCl and then give ethyl ammonium chloride.

CH3-CH2-NH2 + HCl → CH3-CH2-NH3+-Cl-

1. **Carbylamine reaction:** Ethyl amine reacts with chloroform and KOH and then give ethyl isocyanide.

CH3-CH2-NH2 + HCCl3 + 3KOH $→$ CH3CH2-N=C + 3KCl + 3H2O

1. **Reaction with Acetyl Chloride :** Ethyl amine reacts with acetyl chloride and then give N-ethyl acetamide.

CH3-CH2-NH2 + Cl-CO-CH3 → CH3-CH2-NH-CO-CH3 + HCl

**Uses:**

1. It is uses in rubber industries.
2. It is uses in preparation of medicine.

**PREPARATION PROPERTIES AND ESTIMATION OF UREA**

Molecular formula: CH4N2O

Structural formula : H O H

 N-C-N

 H H

The urea is also known as carbamide .It is diamide of carbonic acid.

**Preparation:**

1.Ammonia reacts with carbonyl chloride and then give urea.

 Cl

2NH3 + O=C → H2N-CO-NH2 + 2HCl

 Cl

2.Ammonia reacts with CO2 and then give urea.

CO2 + 2 NH3 → H2N-COONH4 $→$ H2N-CO-NH2 +H2O

**Properties:**

1. It is white crystal
2. It is soluble in water.
3. Hydrolysis: Urea on hydrolysis with dil.mineral gives ammonia.

H2N-CO-NH2 +H2O → CO2 + 2 NH3

1. Reaction with NaNO2 and HCl: Urea reacts with NaNO2 and HCl and gives N2.

NaNO2 + HCl → 2NaCl + 2HNO2

H2N-CO-NH2 + 2HNO2 → 2N2 + CO2 + 3H2O

1. Reaction with Cl2 :Urea reacts with Cl2 water and gives dichloro urea.

H2N-CO-NH2 + 2 Cl2 → H-N-CO-N-H

 | |

 Cl Cl

Uses:

1.It is used as fertilizer .

2. It is used as manufacturing of medicine.

 Estimation of Urea

Principle organic compound in associate acidic medium condenses with Diacetyl monoxime at 100°C to make a red colored complicated. Intensity of the color fashioned is directly proportional to the quantity of organic compound gift within the sample. combine well and keep the check tubes in boiling water (100°C) for ten minutes.