

Name of the Student: _____

Max. Marks : 16 Marks

Time : 16 Minutes

Q1.

- (a) Name and outline a mechanism for the reaction between propanoyl chloride, $\text{CH}_3\text{CH}_2\text{COCl}$, and methylamine, CH_3NH_2 . Draw the structure of the organic product.

(6)

- (b) Benzene reacts with propanoyl chloride in the presence of aluminium chloride. Write equations to show the role of aluminium chloride as a catalyst in this reaction. Outline a mechanism for this reaction of benzene.

(5)

- (c) Write an equation for the reaction of propanoyl chloride with water. An excess of water is added to 1.48 g of propanoyl chloride. Aqueous sodium hydroxide is then added from a burette to the resulting solution. Calculate the volume of 0.42 mol dm^{-3} aqueous sodium hydroxide needed to react exactly with the mixture formed.

(5)

(Total 16 marks)