**Paper 4203 B (M.Sc. Final)**

**(Alkaloids and Polyphenols: Mechanistic Assignment 1)**

An organic compound **A** (C8H8O2), gives violet colour with FeCl3 and on reaction with iodine in basic medium gives compound **B** (C7H6O3) and **C**. Compound **B** on heating with ethanoic anhydride gives a painkiller **D** (C9H8O4). A nitrogen containing compound **E** (C7H7NO), on heating with P2O5 gives **F** (C7H5N) which upon acidic hydrolysis followed by treatment with PCl5 forms a reactive and unstable compound **G** (C7H5ClO). **E** fails to give diazotization test.

Reaction of compound **A** with **G** using LiHMDS in THF at -78 oC gives a diketone **H** (C15H12O3) which gives violet colour with FeCl3 and fails to give haloform test. Diketone H on reaction with con H2SO4 in glacial acetic form **I** (C15H10O2), a natural product having antioxidant property. Compound I fail to give violet colour with FeCl3.

Deduce the structure of all the compounds systematically and write the mechanism for the formation of compound **H** from **A** and formation of natural product **I** from **H**.

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