

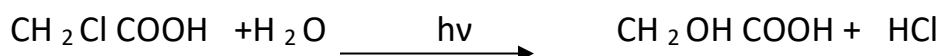
B.E. (chemical) 1st year (Chemistry -1)

Max. Marks:20

MST -2

Q1. (a) State the Lambert Beer 's law. Using it, derive an expression for total absorbance. Draw a graph to show the dependence of absorbance on concentration of a solution. (2+2+2)

(b) In the photochemical reaction



It was found that after irradiating the solution at 253.7 nm, 34.36 J of energy was absorbed and 2.296×10^{-5} moles of HCl were formed. Calculate the quantum yield of the reaction ($h = 6.626 \times 10^{-34}$ Js). (4)

(CO5 Get an introductory idea of laws of photochemistry)

Q2 (a) Diagrammatically show crystal field splitting in octahedral and tetrahedral complexes. (6)

(b) Calculate crystal field stabilization energy (10dq) in (a) high and (b) low spin d4 octahedral complex (4)

(CO3 Learn the details of bonding and reactions of coordination compounds)