CONTENTS

I. Introduction

II. The Reaction Path of $\text{PH}_5 \rightarrow \text{PH}_3 + \text{H}_2$
   Using an SCF Study

III. Structure and Stability of the Formic Acid Monomer and the Formic Acid-Water Complex.
    An Ab initio Study

IV. (i) Molecular Interaction Studies of $\text{C}_2\text{H}_2$-$\text{CO}$ and $\text{C}_2\text{H}_2$-$\text{H}_2\text{O}$ Complexes - A Quantum Chemical Investigation
    (ii) The Possible Route of Formation of $\text{CO}^+$ in Interstellar Medium

V. A Quantum Chemical Study on Monothioformic Acid and Monothioformic Acid....Water Complex