**Preface**

The thesis reports the results of some experimental work carried out by the author on the electronic and infrared absorption spectra in some cases and in addition, Raman spectra too in others, of some organic many atomic molecules, namely 2-chloro-4-fluoro, 3-chloro-4-fluoro-, 2-fluoro-5-methyl- and 5-fluoro-2-methyl benzonitriles and 2, 3-, 2,4, 2,5-, 3,4- and 3,5- difluorophenols. This work was carried out by the author as part of a general programme of work on the spectra of many - atomic molecules going on in our laboratory for last two decades and to the best of the knowledge of the author, the spectra of the nine molecules studied by him have not been investigated so far. The thesis consists of five chapters.

Chapter I gives a very brief review of the relevant theoretical aspects germane to the problem of interpreting the observed spectra of the polyatomic molecules. Chapter II describes the experimental techniques used for recording the different types of spectra investigated by him.

Chapter II contains two sections. The first section discusses the Infrared and Raman spectra of 2-chloro-4-fluoro, 3-chloro-4-fluoro-, 2 fluoro-5-methyl-, 5-fluoro-2-methyl-benzonitriles. Section II deals with a study of the ultraviolet absorption spectra in the vapour phase of the above said benzonitriles.

Chapter IV consists of two sections, section I deals with the Infrared absorption and Raman spectra of 2,3-, 2,4-, 2,5-, 3,4- and 3,5-difluorophenols while section II contains the analyses of the ultraviolet absorption spectra of the above substituted phenols.
Section V deals with the studies pertaining to the determination of the two molecular parameters, electric dipole moment ($\mu$) and dielectric relaxation time ($\gamma$) of some phenols. Also, the electric dipole moments in the first excited states are determined using a method developed in our laboratory.

The references are given at the end of each chapter, some of which of course, unavoidably overlap.

The results obtained by the author and presented in the thesis are all new and it is believed that they will add to our knowledge of the spectra of many atomic molecules. Some of the results have already been published and reprints where available are attached to the thesis at the end.