Acknowledgement

Acknowledgement of guidance, assistance and support for completion of this thesis seem endless.

First of all, I would like to submit my sincere thanks to research guide Prof. Dr. R.S. Mane, School of physical Sciences, Swami Ramanand Teerth Marathwada University, Nanded for giving me opportunity to pursue my Ph. D. in physics. I am indebted to him for giving me valuable guidance, quality discussions and constant encouragement throughout the course of this work. The most important things I learned from him include dedication towards work, punctuality and importantly a soft hand on experimental techniques.

I fell proud to be lucky to get an opportunity to complete the Ph. D. work at School of physical Sciences, S. R. T. M. University, Nanded. I am thankful to our Director, Prof. R. S. Khairnar for his timely help and valuable guidance during my Ph.D. work. I am also thankful to the faculty members of this school, Prof. A. C. Kumbharkhane, Prof. M. K. Patil, Dr. M. P. Mahabole, Dr. A. V. Sarode and Dr. Bogale for their feedbacks and suggestions. They have always taken timeout whenever I approached with a problem for fruitful discussion.

I would like to express my sincere thanks to Dalitmitra, X MLA. Late. Shri. Govindrao M. Rathod, Secretary, V. J. S. S., Vasantnagar for his kind permission to complete my Ph. D. work. I am also thankful to Principal Shri. G. G. Rathod and Former Principal T.Y.Surawanshi, Mr. K.K. Shaik (O.S.). B.J.Ingole. for their support during this entire work.

I would like to thank the teaching and non-teaching staff of the School of physical Sciences, S. R. T. M. University, Nanded. I am thankful to my research colleagues Dr. Sambhaji Bhande, Mr. Kailas Tehare, Dr. Shyam Gore, Dr. Mnohar Zate, Mr. Sanjay Gaikwad, Dr. Vijaykumar Jadhav, Mr. Janardhan shendkar, Dr. Shivaji Waghmare, Mr. Gangashekar, Mr. Ahmed AL. Osta, Mr. Sandesh Mutkale, Dr. Navale, paresh and Mr. Jivan Kote for their constant help and discussions throughout the work.

I would like to thank Dr. Sanjay Reedy, Dr. Padamar, Shri Patil Sanjay, Dr. I. M. Syed, Shri D.B. Chavan, shri P.V. Biradar, Shri Santosh Patil, Shri D. A. Pawar, Shri L. D. Naik, Shri
D.K. Salgar and all my teaching and non-teaching colleagues of Sevadas junior college, Vasantnagar. Special thanks are due to Jaiprakash Bhutada, Manohar surawanshi, Baburao Gandapwad and Dinesh Kulkarni all the way to the completion.

I owe my deepest sense of gratitude to my parents Sow.watsalabai and Shri Sopanrao Jadhav. Their blessings with constant inspiration, moral support encouraged me throughout the life. My beloved wife Manisha, daughter Shivani & son Shubhendhu are truly wonderful for putting up with my periods during the research work.

Finally, I acknowledge all those who have helped me directly or indirectly during the task of this work.

Vijaykumar .S. Jadhav