ACKNOWLEDGEMENT

It would have been an aimless search in the multitude of uncertainties, but timely help of my research guide Dr. Mahendra D. Shirsat, who showed me the direction and aim to achieve our target. Therefore, it is not customary of thanking but deep gratitude which comes from the core of heart.

I deeply indebted to my research guide Dr. Mahendra D. Shirsat, Optoelectronics and Sensor Research Laboratory, Department of Physics, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad for his keen interest and valuable guidance, strong motivation, constant encouragement and sympathetic consideration of my difficulties during the course of this work. I have no word to express adequately my debt of gratitude to him. He gave me the freedom and encouragement to pursue my interdisciplinary research as well as trusted me often more than myself and never let me get out of his office without a positive thought. I indeed feel proud of the opportunity to study under him and an enlightening and enriching experience. I am greatly indebted to him and desire to remain so throughout my life.

I am grateful to Prof K M Jadhav, Head, Department of Physics, Dr Babasaheb Ambedkar Marathwada University, Aurangabad for providing research facility in the Department and his valuable suggestions and kind co-operation. Thanks are also due to other faculty of the Department of Physics, Prof S H Behere, Prof D D Deshmukh, Dr P W Khirade, Dr V V Nawarkhele, Dr S S Patil, Dr R P Sharma, Dr B N Dole and non-teaching staff for their valuable support and constant encouragement.

I am grateful to Dr Ashok Kakde, Jalana, who inspired me to carry out the research and gave me valuable suggestions and kind co-operation.
I extend my thanks to University Grant Commission, New Delhi for the award of Teacher Fellowship under FIP scheme.

I have no words to express my gratitude to Prin. J G Jadhav, Prin. R P Walekar, Mr A R Patil, Mr J A Wagh, Dr A J Pawar and staff of the Karmveer Bhaurao Patil Mahavidyalaya, Pandharpur, Dist. Solapur (M.S.) and Pay my most sincere oblation of reverence to the management of Rayat Shikshan Sanstha Satara (M.S.)

I express my sincere thanks to Prof D B Dhaigude, Dept. of Mathematics, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, Dr A A Athawale, Dept. of Chemistry, University of Pune, Pune, Mr A D Garje, Dept. of Physics, SVC Polytechnic, Pune, Dr M P Pillai, Mr. Y P Gogiya, DOEACC (formerly CEDTI), Aurangabad, Dr A D Shaligram, Dept. of Electronics Science, Pune University, Dr M V Kulkarni, C-MET, for extending their valuable guidance and time to time fruitful discussion.

I express my sincere thanks to Prof S L Mokale, Y B Chavan College of Pharmacy, Aurangabad, Prof C V Dharmadhikari Department of Physics, University of Pune, Shri A P Gadgil and Shri D S Shishupal, Department of Chemistry, University of Pune, for extending SEM UV-Visible and FTIR facility.

I express my healthy thanks to my research colleagues Dr D J Shirale, Dr P D Gaikwad, Dr V K Gade, H J Kharat, P A Savale, S S Hussaini, N R Dhumane, Kunal Datta and P Ghosh who were constantly enquiring my achievements. I am most grateful to my friends, Mr Dilip Hasabe, Ravi Waghmare, Dr. S P Shinde, Mr A J Barakade, Mr Dilip Jadhav from whom I received valuable suggestions and co-operation.

Finally, I would like to thank my family for their encouragement, support and motivation during this work. The uncompromising attitude of my parents
Shri Pandharinath Kakde, Sau Pramilabai P Kakde, Sisters Sau Amrapali D Salve, Sau Vaishali T Mhaske and Brother-in-Law Shri D G Salve, Shri T L Mhaske, my uncle Shri S G Waghmare, aunty Sau. Bhavana S Waghmare and Brothers Dilip, Sunil, my father in law Shri C R Salve, brother in law Vijay, Ajay and Shri R G Bansode help me about to complete this work.

I owe a great deal to my affectionate and esteemed wife Sau Madhuri for her tolerance, patience and source of encouragement. I can never express my gratitude to my lovingly daughters “Mokshda and Yashada” who always gratify me.

Kishor. P. Kakde