ACKNOWLEDGEMENTS

The author is extremely grateful to Professor P.C. Mahanta, M.Sc., Ph.D., D.I.C., the Professor and Head of the Department of Physics, Gauhati University and to Dr. J. Hatibarua, M.Sc., D.Phil., Ph.D., D.I.C., lecturer of the Department, for their constructive supervisions and most valuable suggestions throughout this investigation.

The author acknowledges with gratitude the help and advices of the teaching staff of the Department of Physics, Gauhati University. Thanks are also due to the technical staff of the Department for their help.

The author is thankful to Central Glass and Ceramic Research Institute, Calcutta and Regional Research Laboratory, Jorhat, Assam for giving him facilities to work with D.T.A. and Infrared Spectrograph respectively.

The author would also like to thank all the members of his family for their encouragement and good wishes. Thanks are also due to the authority of Darrang College, Tezpur, for granting him study leave in this connection.

Lastly, the financial assistance of C.S.I.R., New Delhi is gratefully acknowledged.