Acknowledgements

Endless advice, encouragement, knowledge and support of teachers, research scholars and others have made me possible to complete my Ph.D. thesis work.

The most difficult task is to thank former Professor B.R. Maiti, Department of Zoology, University of Calcutta, whose magnanimity has always been overwhelming. Ever since my days as a student in Science College till date, I keep on wondering how a person can be so knowledgeable, sincere, punctual, meticulous and yet so simple, caring and cordial. The way Sir has guided me and always stood by me all those years has enabled me to keep up high spirits even during scientifically less productive period and complete this work and keep me indebted to him forever.

I am greatly thankful to Professor Samir Banerjee, Department of Zoology, University of Calcutta, for his heart-felt co-operation, valuable suggestions and constant encouragement which helped me to tide over my problems and difficulties during the entire work.

I am very much indebted to Dr. Urmi Chatterji, Department of Zoology, University of Calcutta for her continuous encouragement, constant inspiration and valuable help, without her help this work could not be completed.

I am extremely grateful to the present and past Heads of the Department of Zoology, University of Calcutta, for permitting me to proceed with my research programme in the Department. My sincere gratitude is due to my teachers.

I am extremely grateful to Professor Dilip Mukherjee, Department of Zoology, University of Kalyani, for providing me with his laboratory facility in connection with the in vitro study of oocyte maturation. I am also grateful to Professor Mukherjee for providing me with the expensive chemicals required for in vitro study.

I am extremely grateful to Dr. Tapas Chandra Nag, Associate Professor of Anatomy, AIIMS, New Delhi, for assistance in Electron Microscopy.

I wish to express my deep sense of gratitude to Professor Debabrata Nag, Head of the Department of Biochemistry, Guru Nanak Dental College, Calcutta for unstinted help in hormone quantifications.
I am extremely grateful to Dr. Kousik Pramanik, Lecturer, Department of Zoology, Ashutosh College, for unforgettable assistance in *in vitro* study of oocyte maturation.

I like to pay my gratitude to Dr. Santasri Chowdhuri-Sengupta for her constant help in Biochemical assay and calculation.

I am ever grateful to Dr. Supriti Sarkar, Reader, Department of Zoology, City College, for her enthusiastic assistance in editing the manuscript. Thanks are due to my laboratory colleagues, Mr. Indraneel Saha, Mr. Aniruddha Chatterjee, Mr. Ankur Bhowal, Miss Piyasi Mukhopadhyya and Mrs. Anushree Mondal for providing an excellent working environment.

I gratefully acknowledge the assistance of Mr. Tapan Nayak and his office staff for collection of specimens and blood samples in Alampur Fish Station.

I gratefully acknowledge the help and enthusiastic assistance rendered by Mr. Samarendra Nath Das, Principal, Contai Public School and Mr. Barun Kumar Jana Principal, Contai Royal College.

My thanks are also due to Miss Ruby Das for excellent typographic assistance.

I wish to extend my thanks to Mr. Nihar Ranjan Maiti, ex-secretary and colleagues of Bhawanichak High School who encouraged and supported me during the tenure of my research work.

Last and not the least my family filled with love and care provided full support for completing the thesis, specially my wife Mousumi, my daughters Purba and Purabi and my brother-in-law Mr. Sibaprasad Maiti for their selfless support and co-operation that can only be acknowledged silently.

Finally, my parents who brought me up from the very first day of life with unfailing love, blessings and continuously encouraged me at the hours of exhaustion, and shared with me every moment of distress and satisfaction of completing this thesis. I am enriched enough to express my feelings of gratitude to my Ma and Baba.

Puranjan Das