## **FOREWORD**

Praise and thank the authors say to God, for all his blessings all this time, so this thesis can be completed well. Thesis entitled "The Development of e-Worksheet on Chemical Bonding Topic Integrated Problem Based Learning (PBL)", arranged as one of the requirements for obtaining Education degree in Chemistry, Faculty of Mathematics and Natural Sciences, State University of Medan.

On this occasion the author would like thank to Mr. Dr. Zainuddin Muchtar, M.Si as a thesis supervisor who has provided much guidance, advice, and motivation to the writer since the beginning of planning, research, until the completion of this thesis writing. Thanks also go to Mrs. Dr. Iis Siti Jahro, M.S.i, Mrs. Nora Susanti, S.Si, Apt, MSc and Mr. Drs. Eddyanto, Ph.D as a examiner who has provided input and suggestions for the improvement of this thesis. Thank you sent to Mr. Prof. Dr. Wesly Hutabarat, M.Sc as an academic supervisor who has provided a lot of input, advice and guidance as long as the writer goes through academic activities and to all the father and mother lecturers and staff of the Chemistry Department, FMIPA UNIMED. Thank you also to Mr. Drs. H. Masri Lubis, M.Si as the principal who has allowed the author to conduct research at SMA NEGERI 7 MEDAN and thanks to the ladies and gentlemen of chemistry teachers who helped the writer during the research process.

Especially thanks to my dear parents, Father **Parmidin Manullang, S.Pd** and Mother **Lortauli Silalahi, S.Pd**, as well as a motivator and inspiration in life, who are very struggling in educating and endlessly praying for me, so that in the end the writer can hold an Education degree. Thank you also to all of my best familly ever that give me full spirit.

To my friends in the class that contains 14 strong, beautiful girls, and who have given sweet and bitter memories so far. Especially to "GIRLS SQUAD" which contains 5 sweet and calm girls **Titi Indra Lestari** (the boarding house I often visited during thesis writing), **Tio Lyn Sihombing** (our slimmer friend),

Fatimah Asri Jambak (the script I guide to), and Sendy Kristine Siahaan (the person is late, my upin).

The author has tried as much as possible in completing this thesis, but the author realizes that there are still many weaknesses both in terms of content, structure and grammar. For that the authors expect constructive criticism and suggestions from readers for the perfection of this thesis. May the contents of this thesis be useful in enriching the science of education.

Medan, January 2020 Author,

Nadia Elisabet Manullang

