

## TABLE OF CONTENTS

	<i>Page</i>
APPROVAL SHEET .....	i
ORIGINALITY STATEMENT PAGE .....	ii
APPROVAL PAGE FOR PUBLICATION OF FINAL THESIS FOR ACADEMIC PURPOSES .....	iii
CURRICULUM VITAE .....	iv
ABSTRACT .....	v
FOREWORD .....	vi
TABLE OF CONTENTS .....	viii
LIST OF FIGURES .....	x
LIST OF TABLES .....	xi
LIST OF APPENDIX .....	xii
CHAPTER I INTRODUCTION .....	1
1.1 Research Background .....	1
1.2 Problem Identification .....	5
1.3 Scope of Study .....	5
1.4 Scope of Problem .....	5
1.5 Research Questions .....	6
1.6 Study Objectives .....	6
1.7 Research Purposes .....	7
CHAPTER II LITERATURE REVIEW .....	8
2.1 Theoretical Framework .....	8
2.1.1 Concept .....	8
2.1.2 Conception .....	9
2.1.3 Student Understanding .....	9
2.1.4 Concept Understanding .....	9
2.1.5 Misconception .....	10
2.1.6 Causes of Misconceptions .....	10
2.1.7 Prevention of Misconceptions .....	11
2.1.8 Reaction Rate Misconceptions .....	12
2.1.9 Three-Tier Diagnostic Test .....	12
2.1.10 Reaction Rate .....	13
2.2 Framework of Thinking .....	19
CHAPTER III RESEARCH METHOD .....	20

3.1	Place and Time of Research .....	20
3.2	Types of Research.....	20
3.3	Population and Sample .....	20
3.4	Operational Definition.....	20
3.5	Research Design .....	21
3.6	Data Collection Technique .....	21
3.7	Research Instrument .....	22
3.8	Research Procedure .....	23
3.9	Data Analysis.....	27
3.9.1	Content Validity Data Analysis by Experts .....	27
3.9.2	Construct Validity Data Analysis .....	28
3.9.2.1	Analysis of Three-Tier Multiple-Choice Diagnostic Test.....	28
3.9.2	Grouping Data Based on Concept on Reaction Rate .....	32
3.9.3	Grouping Data Based on Student Understanding .....	32
3.9.4	Calculating Percentages .....	33
3.9.5	Draw a Conclusion.....	34
	<b>CHAPTER IV RESULTS AND DISCUSSION .....</b>	<b>35</b>
4.1	Research result.....	35
4.1.1	Test Instrument Data Analysis .....	35
4.1.1.1	Content Validity Data Analysis by Expert .....	35
4.1.1.2	Small Scale Trials.....	43
4.1.1.3	Analysis of Three-Tier Multiple-Choice Diagnostic Test Items ...	43
4.1.2	Students' Conception on Reaction Rate Material .....	45
4.2	Discussion.....	47
4.2.1	Analysis of Student Misconceptions on Reaction Rate Concept....	47
	<b>CHAPTER V CONCLUSION AND SUGESSTION .....</b>	<b>67</b>
5.1	Conclusion.....	67
5.2	Sugesstion .....	67
	<b>REFERENCES.....</b>	<b>68</b>
	<b>APPENDIX .....</b>	<b>72</b>