

# THE EFFECT OF USING GENRE BASED LANGUAGE TEACHING (GBLT) ON STUDENTS' READING DESCRIPTIVE TEXT ABILITY AT GRADE VIII SMP NEGERI 2 PADANGSIDIMPUAN 

## A THESIS

# Submitted to the Institute for Islamic Studies Padangsidimpuan as a Partial Fulfillment of the Requirement for the Degree of Education (S.Pd) in English 

Written by:
NILMA SARI
Reg. Number: 133400018

## ENGLISH EDUCATION DEPARTMENT

## TARBIYAH AND TEACHER TRAINING FACULTY INSTITUTE FOR ISLAMIC STUDIES PADANGSIDIMPUAN



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ENGLISH EDUCATION PROGRAM
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2017

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| Item : 7 (seven) exemplars | Dean Tarbiyah and |  |
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Assalamu'alaikum Wr.Wb.

After reading, studying and giving advice for necessary revision on thesis belongs to Nilma Sari, entitled "The Effect of Using Genre Based Language Teaching (GBLT) on Students' Reading Descriptive Text Ability at Grade VIII SMP Negeri 2 Padangsidimpuan", we approved that the thesis has been acceptable to complete the requirement to fulfill for the degree of Education (S.Pd) in English.

Therefore, we hope that the thesis will soon be examined in front of the Thesis Examiner Team of English Department of Tarbiyah and Teacher Training Faculty IAIN Padangsidimpuan. Thank you.

Wassalamu'alaikum Wr.Wb.

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## DECLARATION OF SELF THESIS COMPLETION

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## LEGALIZATION

| Thesis | :THE EFFECT OF USING GENRE BASED |
| :--- | :--- |
|  | LANGAGE TEACHNG (GBLT) ON STUDENTS' |
|  | READING DESCRIPTIVE TEXT ABILITY AT |
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#### Abstract

In this research, the researcher found that students' mark in reading descriptive text ability was unsatisfied. The students' problem in reading descriptive were: 1) the students were difficult in comprehending the contents of descriptive text, 2) the students got bored of reading descriptive text, and 3) the students were difficult distinguish between identification and description of the generic structure in descriptive text. Beside the students' problem, teacher's strategy also became a problem in learning reading descriptive text. The teacher still used the conventional strategy in teaching reading descriptive text. The purpose of this research was to examine the effect of using Genre Based Language Teaching (GBLT) on Students' Reading Descriptive Text Ability at Grade VIII SMP Negeri 2 Padangsidimpuan.

The approach used in this research was experimental research which two classes as the sample. They were VIII-2 as experimental class that consisted of 31 students and VIII-3 as control class that consisted of 30 students. In this research, the researcher gave pre-test and post-test. Meanwhile, the data was derived from interview, pre-test, and post-test. To analyze the data, the researcher used parametric test with t-test formula.

After the data have been analyzed, the researcher found that there was the difference of mean score with used conventional method and after used Genre Based Language Teaching (GBLT). Mean score of experimental class with conventional method was 59.34 and mean score after used Genre Based Language Teaching (GBLT) was 87.84 . The effect of using Genre Based Language Teaching (GBLT) on students' reading descriptive text ability was $7.926>1.671$ with $t_{0}$ is higher than $t_{t}$. It means $H_{a}$ was accepted and $H_{0}$ was rejected. So, there was a significant effect of using Genre Based Language Teaching (GBLT) on students' reading descriptive text ability at grade VIII SMP Negeri 2 Padangsidimpuan.


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I realize this thesis cannot be considered perfect without critiques and seggestions. Therefore, it is such a pleasure for me to get critiques and suggestions from the readers to make this thesis better.

Padangsidimpuan, May 2017
Researcher

NILMA SARI
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## TABLE OF CONTENTS

Page
INSIDE TITLE PAGE ..... i
LEGALIZATION ADVISORS SHEET ..... ii
AGREEMENT ADVISORS SHEET ..... iii
DECLARATION OF SELF THESIS COMPLETION ..... iv
AGREEMENT PUBLICATION OF FINAL TASK FOR ..... v
ACADEMIC CIVITY ..... vi
SCHOLAR MUNAQOSYAH EXAMINATION ..... vii
LEGALIZATION OF DEAN OF TARBIYAH AND TEACHER ..... viii
TRAINING FACULTY ..... ix
ABSTRACT ..... x
ACKNOWLEDGEMENT ..... xi
TABLE OF CONTENTS ..... xiv
LIST OF TABLES ..... xvii
LIST OF FIGURES ..... xviii
LIST OF APPENDIXES ..... xix
CHAPTER I INTRODUCTION
A. Background of the Problem ..... 1
B. Identification of the Problem ..... 6
C. Limitation of the Problem ..... 7
D. Formulation of the Problem. ..... 8
E. The Objectives of the Research ..... 8
F. Significances of the Research ..... 9
G. Definition of Operational Variables. ..... 9
H. The Systematic of the Thesis ..... 10
CHAPTER II THEORETICAL DESCRIPTION
A. Theoretical Description ..... 12

1. Genre Based Language Teaching (GBLT) ..... 12
a. Definition of Genre Based Language Teaching ..... 12
b. Developing Learning Material of GBLT ..... 14
c. Learning Experience of GBLT ..... 15
2. Conventional Method ..... 17
a. Definition of Conventional Method ..... 17
b. Procedures of Conventional Method ..... 18
3. Reading Descriptive Text ..... 19
a. Definition of Reading Descriptive Text ..... 19
b. The Reading Goals ..... 22
c. The principal Strategies for Reading ..... 22
d. Reading Assessment ..... 23
e. Text Function of Descriptive text ..... 24
f. The Generic Structure Of Descriptive Text ..... 24
g. Language Features of Descriptive Text ..... 25
h. The Example of Descriptive Text. ..... 25
B. Review of Related Findings ..... 26
C. Conceptual Framework ..... 29
D. Hypothesis ..... 30
CHAPTER III RESEARCH METHODOLOGY
A. Place and Schedule of the Research ..... 32
B. Research Design ..... 32
C. Population and Sample ..... 33
4. Population ..... 33
5. Sample ..... 34
D. Instrument of Collecting Data ..... 36
E. Validity and Reliability Instrument ..... 38
6. Validity ..... 38
7. Reliability ..... 39
F. Procedures of Data Collection ..... 40
8. Pre-test ..... 40
9. Treatment ..... 41
10. Post-test ..... 42
G. Technique of Analyzing Data ..... 43
11. Scoring technique ..... 43
12. Requirement test ..... 43
13. Hypothesis test ..... 44
CHAPTER IV DATA ANALYSIS
A. Description of Data ..... 47
14. Description of Data before Using GBLT ..... 47
a. Score of Pre-test Experimental Class ..... 47
b. Score of Pre-Test Control Class ..... 49
c. The Comparison between Description Data Pre-Test Control Class and Experimental Class ..... 52
15. Description of Data after Using GBLT ..... 53
a. Score of Post-Test Experimental Class ..... 53
b. Score of Post-Test Control Class ..... 56
c. The Comparison between Description Data Post-Test Control Class and Experimental Class ..... 59
B. Technique of Data Analysis ..... 60
16. Requirement Test ..... 60
a. Normality and Homogeneity Pre-Test. ..... 60
1) Normality of Experimental and Control Class in Pre-Test ..... 60
2) Homogeneity of Experimental and Control Class in Pre-Test ..... 61
b. Normality and Homogeneity Post-Test ..... 61
3) Normality of Experimental and Control Class in Post-Test ..... 61
4) Homogeneity of Experimental and Control Class in Post-Test ..... 62
2. Hypothesis Test ..... 62
C. Discussion ..... 64
D. Threats of the Research ..... 68
CHAPTER V THE CONCLUSION AND SUGGESTION
A. Conclusion ..... 69
B. Suggestion ..... 70
REFERENCES
CURRICULUM VITAE
APPENDIXES

## LIST OF TABLES

Page
Table 1 : Indicators of Reading Assessment. ..... 24
Table 2 : Research Design ..... 33
Table 3 : Population of the Research ..... 34
Table 4 : Indicators of Reading Descriptive Text in Pre-test ..... 37
Table 5 : Indicators of Reading Descriptive Text in Post-test ..... 38
Table 6 : The Score of Experimental Class in Pre-Test. ..... 47
Table 7 : Frequency Distribution of Students' Score ..... 48
Table 8 : The Score of Control Class in Pre-Test. ..... 50
Table 9 : Frequency Distribution of Students' Score ..... 51
Table 10 : The Score of Experimental Class in Post-Test ..... 54
Table 11 : Frequency Distribution of Students' Score ..... 55
Table 12 : The Score of Control Class in Post-Test ..... 57
Table 13 : Frequency Distribution of Students' Score ..... 58
Table 14 : Normality and Homogeneity in Pre-Test ..... 60
Table 15 : Normality and Homogeneity in Post-Test ..... 61
Table 16 : Result of T-test from Both Averages ..... 63

## LIST OF FIGURES

Page
Figure 1 : Description Data Pre-Test of Experimental Class ..... 31
Figure 2 : Description Data Pre-Test of Experimental Class ..... 49
Figure 3 : Description Data Pre-Test of Control Class ..... 52
Figure 4 : Description Data Pre-Test of Control Class and
Experimental Class. ..... 53
Figure 5 : Description Data Post-Test of Experimental Class ..... 56
Figure 6 : Description Data Post-Test of Control Class ..... 59
Figure 7 : Description Data Post-Test of Control Class and
Experimental Class ..... 60

## LIST OF APPENDIXES

Appendix 1 : RPP of Experimental Class
Appendix 2 : RPP of Control Class
Appendix 3 : Instrument for Pre-Test Experimental and Control Class
Appendix 4 : Instrument for Post-Test Experimental and Control Class
Appendix 5 : Answer Key of Pre-Test and Post-test
Appendix 6 : Validity of Pre-Test
Appendix 7 : Validity of Post-Test
Appendix 8 : Reliability of Pre-Test
Appendix 9 : Reliability of Post-Test
Appendix 10: Calculation of Pre-Test and Post-Test
Appendix 11: Table Validity of Pre-Test
Appendix 12: Table Validity of Post-Test
Appendix 13: Reliability Pre-Test
Appendix 14: Reliability Post-Test
Appendix 15: Score of Experimental Class and Control Class on Pre-Test
Appendix 16: Score of Experimental Class and Control Class on Post-Test
Appendix 17: Homogeneity Pre-Test
Appendix 18: Homogeneity Post-Test
Appendix 19: Normality Pre-Test
Appendix 20: Normality Post-Test
Appendix 21: T-test of the Both Averages in Pre-Test
Appendix 22: T-test of the Both Averages in Post-Test
Appendix 23: Chi-Square Table
Appendix 24: Z-Table
Appendix 25: Percentage Points of the t Distribution
Appendix 26: Photo Research

## CHAPTER I

## INTRODUCTION

## A. Background of the Problem

Reading is learned from Elementary School until University. Reading is the process of cognition, interpretation and perception of a written or printed material. With reading, the readers can explore new things, improve their self, can add their vocabulary, increase focus and concentration, relieve ennui, increase memory quality, and increase social contact. These important are explained in the following paragraphs.

The first, the readers can explore new things. Through reading they can explore new information, such as their hobbies, knowledge and advice. It means, reader can get much information through exploring new information to improve their hobbies, knowledge and advice.

The second, the reader can improve their self. Through reading, they understand about their self, for example: how to sharpen their right or left brain, how to memorize things better and more. It means, the reader able to prepare appropriate that their read.

The third, the reader can add their vocabulary. With reading, they get explain about everything and add their vocabulary that they can use in their daily activity. So, can help for delivering their idea goodly and add selfconfidence when speak.

The fourth, the reader can increase their focus and concentration. With reading, they can train their brain to focus and concentration more on their read and to focus for doing their daily activities.

The fifth, the reader can relieve their ennui. After done their activity, will feel ennui or tired. With reading, can help push down the stress hormone and make their mind enjoy more, so that can help reduce the stress level until $67 \%$.

The sixth, the reader can increase their memory quality. With reading, can help their brain in memorize, such as character, background, ambition, history and plot of the story. With reading can help train their brain maximally than just watching television or listening radio.

The last, the reader can increase their social contact. With reading can influence the life aspect of human being, which they can know about characteristics and cultures of society. So if one day, they visit other place or state, they can respect the cultures.

Reading is an essential skill for learners of English as a second language. For most of these learners it is the most important skill to master in order to ensure success in learning maximally. Reading has considered important as the result of writing, listening and speaking. So, learners must pay attention and do not underestimate it.

Descriptive text is a written English text in which the writer describes an object. ${ }^{1}$ Reading descriptive text is reading a text which says what a persons or a things is like. Reading descriptive text has a significant role in learning language process. In addition, reading descriptive text is still a problem.

Based on the interview with an English teacher ${ }^{2}$ in SMP Negeri 2 Padangsidimpuan, she said that there were some problems on reading descriptive text. First, the students were difficult in comprehending the contents of descriptive text. It means, they often have difficulties when the teacher asked them to comprehend the contents of descriptive text, because usually most of students just read the text, there is no wish to comprehend contents about descriptive text.

Second, they were easy to get bored of reading descriptive text. Most of the students not interest in learning descriptive text. They have less motivation and they think that learning descriptive text is not important.

Third, they often have difficulties distinguish between identification and description of the generic structure in descriptive text. They don't know how to memorize what the different whereas there are some methods that can be used by learners to memorize or comprehend about descriptive text.

[^0]The last, English teacher hasn't method to teach descriptive text and the teacher ask students to memorize back about descriptive text, so they can't answer quickly. Besides that, the students learned descriptive text is only by them self while learning from their books or outside of the classroom.

There were some strategies, methods or approaches that can be conducted in reading descriptive text, such as scanning, Genre Based Language Teaching (GBLT), semantic mapping or clustering, guessing, vocabulary analysis and skimming. Scanning is searching specific information without reading through the whole text and scanning is important in dealing with genres like schedules, manuals, forms, etc; Genre Based Language Teaching is a kind of approach to enable students communicative with variety types of text; semantic mapping or clustering is can easily be overwhelmed by a long string of ides or events and to provide some order to the chaos; guessing is which they fill gaps in their competence by intelligent attempts to use whatever clues are available to them; vocabulary analysis is to analyze word in terms of what they know about it; skimming is consist of quickly running one's eyes across a whole text (an essay, article, or chapter, for example) to get the gist ${ }^{3}$, and skimming is handy for people who need to hunt

[^1]information for print, this include reading a newspaper as well as doing research in a library. ${ }^{4}$

From above approaches, strategies or methods, the researcher chose GBLT as the effective way to make easy in comprehending the variety types of text. GBLT is a kind of method. Carrell in B. Sadeghi, The Effects of Genre-based Instruction on ESP Learners' Reading Comprehension said that, teaching genre based instruction demonstrate positive outcomes of teaching genre structure on reading recall or comprehension. ${ }^{5}$ This method is to enable students' communicative with variety types of text. This approach will strengthen their cooperation because it will be necessary for them to make a good communicative competence in comprehending the texts. As the result, students can read descriptive text well.

From the explanation above, show GBLT have the effect on students' reading descriptive text ability. But, based on teacher's explanation "when students at grade VIII SMP Negeri 2 Padangsidimpuan studied to comprehend the text, the teachers just write the text, and then order the students to write the text one by one. After that, students are order to find the difficult words from the text and then translated the words. The last, students do the exercise.

[^2]Therefore, the problem in this research that GBLT isn't implemented at grade VIII SMP Negeri 2 Padangsidimpuan. So, researcher is interested to find out the effect of GBLT on students' reading descriptive text ability at grade VIII SMP Negeri 2 Padangsidimpuan.

There were also some reasons why the researcher chose this approach. First, it would make the students able to communicate. They would think how to describe the things to make their friends get what they mean. Second, develop reading skill by presenting authentic text to the students. Finally, this approaches would strengthen their cooperation because it would be necessary for them to make a good communicative competence in comprehend of the texts.

Based on explanation above, researcher was interested to conduct the research to solve the problem about students' reading descriptive text entitled "The Effect of Using Genre Based Language Teaching (GBLT) on Students' Reading Descriptive Text Ability at Grade VIII SMP Negeri 2 Padangsidimpuan".

## B. Identification of the Problem

Based on above background of problem, there were some problems in students' reading descriptive text ability at grade VIII SMP Negeri 2 Padangsidimpuan:

1. The students were difficult in comprehending the contents of descriptive text.
2. The students were easy to get bored of reading descriptive text
3. The students were difficult distinguish between identification and description of the generic structure in descriptive text.

Beside of the problems in students' reading descriptive text, there were also problem in teacher's method in teaching reading descriptive text ability is English teacher hasn't method to teach descriptive text.

There were some approaches that have the effect on students' reading descriptive text ability. But, the form of teaching by using method isn't implemented at Grade VIII SMP Negeri 2 Padangsidimpuan. From the problem, the researcher concerns to find out the effect one method on students' reading descriptive text ability. It is GBLT (Genre Based Language Teaching).

## C. Limitation of the Problem

Based on above identification of problem, this research is limited to investigate the causal-effect relationship between GBLT on students' reading descriptive text. This research has been conducted by experimental research at grade VIII in VIII-2 class second semester in academic year 2016/2017 SMP Negeri 2 Padangsidimpuan.

## D. Formulation of the Problem

The formulations of the problem in this research were:

1. How was the students' reading descriptive text ability without using Genre Based Language Teaching (GBLT) at grade VIII SMP Negeri 2 Padangsidimpuan?
2. How was the students' reading descriptive text ability after using Genre Based Language Teaching (GBLT) at grade VIII SMP Negeri 2 Padangsidimpuan?
3. Was there any significant effect of using Genre Based Language Teaching (GBLT) on students' reading descriptive text ability at grade VIII SMP Negeri 2 Padangsidimpuan?

## E. The Objectives of the Research

From above formulation of the problem, the aims of this research were:

1. To describe the students' reading descriptive text ability without using Genre Based Language Teaching (GBLT) at grade VIII SMP Negeri 2 Padangsidimpuan.
2. To describe the students' reading descriptive text ability after using Genre

Based Language Teaching (GBLT) at grade VIII SMP Negeri 2
Padangsidimpuan.
3. To examine whether there is or there is not any significant effect of using Genre Based Language Teaching (GBLT) on students' reading descriptive text ability at grade VIII SMP Negeri 2 Padangsidimpuan.

## F. Significances of the Research

The significances of this research were:

1. For headmaster, the result of this research was expected to be useful to develop the English learning process where the headmaster can guide the English teacher to use the approach in this research.
2. For the English teachers, to give information or their source in teaching descriptive text. This research is also to add her method in teaching English text or descriptive text and motivate the teacher to increase her professionalism in teaching learning process.
3. For the researcher, the result of this research was expected to be the information for the others researchers to make the further research.

## G. Definition of Operational Variables

The avoiding ambiguity, this research is consisted of two variables, so that following were definitions of variables:

1. Genre Based Language Teaching (GBLT)

Genre based language teaching (GBLT) is a kind of approach. This approach is to enable students communicative with variety types of text. It means the students comprehend and produce a certain specified texts or to
produce language with certain purpose. The purposes are bound to the targeted genres.
2. Students' Reading Descriptive Text Ability

Reading descriptive text ability is the students' ability in comprehending the texts and describes an object. It means the students can comprehend the typical stages of the texts. Identification and description are the generic structure of descriptive text.

## H. The Systematic of the Thesis

This research was organized into five chapters. Every chapter was subdivided into subtopics to elaborate the given issue. First chapter, it consisted of background of the problem, identification of the problem, limitation of the problem, formulation of the problem, objectives of research, significances of the research, definition of operational variables, and the systematic of the thesis.

Second chapter, it consisted of the theoretical description. It was divided into subchapters which consist of description of Genre Based Language Teaching (GBLT) and description of students' reading descriptive text ability. Second chapter also consisted of related findings, conceptual framework and hypothesis.

Third chapter, it consisted of research methodology which was divided into sub chapter; time and place of the research, research design, population
and sample, instrument of research, procedure of data collection, techniques of analyzing data.

Fourth chapter, it consisted of data description, hypothesis testing, discussion and the threats of research.

Fifth chapter, it consisted of conclusion about the result of this research and suggestions that were given by the researcher.

## CHAPTER II

## THEORETICAL DESCRIPTION

## A. Theoretical Description

## 1. Genre Based Language Teaching (GBLT)

a. Definition of Genre Based Language Teaching (GBLT)

According to Richard and Rodgers, an approach is a set of correlative assumptions dealing with the nature of language teaching and learning. ${ }^{1}$ Edward Anthony, in Approach and Methods in Language Teaching mention that, approach is the level at which assumptions and beliefs about language and language learning are specified. ${ }^{2}$ It is the way that used by the teacher in teaching the lesson. According to Freedman and Medway: 'Traditional definitions of genre focused on textual regularities. In the words of Berkenkotter and Huckin:

Genres are the media through which scholars and scientists communicate with their peers. Genres are intimately linked to a discipline's methodology and they package information in ways that conform to a discipline's norms, values, and ideology. Understanding the genres of written communication in one's field is, therefore, essential to professional success. ${ }^{3}$

Swales also categorizes genres according to their set of shared communicative purposes, offering an extensive elaboration of the

[^3]concept. ${ }^{4}$ There are genres in academic writing, they are: an essay, a report, a case study, a research proposal, a book review, a research method General interest articles (in magazines, newspapers, textbooks, theses, essays, papers, messages (e.g., phone messages), letters/ email, lemos (e.g., interoffice). ${ }^{5}$ Based on above definition, genre is a type, group or kinds of text.

Richard in Dudley said that, Genre-Based Approach was originally from Australia. This term was first introduced in the area of English as specific purpose (ESP) in 1981 and the technical of GBA can be called as genre based language teaching and this technical more recognized until this era. All language features and competency in communication is argued to be as part of the discourse, it is to say to build discourse competence as the center of genre based language teaching. ${ }^{6}$

Hammond in Macken, Genre-Based Approach said that, Genre-Based Approach also known as a genre-based instruction, text based instruction or genre-based language teaching sees communicative competence as involving the mastery of different types

[^4]of texts. ${ }^{7}$ Carrell in B. Sadeghi, The Effects of Genre-based Instruction on ESP Learners' Reading Comprehension said that, teaching genre based instruction demonstrate positive outcomes of teaching genre structure on reading recall or comprehension. ${ }^{8}$ According to Badger and White, Genre Based Approach is actually an integration of the product approach and the process approach which result in a processgenre approach. ${ }^{9}$

Based on above definition, it can be concluded the Genre Based Language Teaching (GBLT) is an approach that emphasis on text's genres and manages the students to total comprehension and production of the text types. It means that Genre Based Language Teaching (GBLT) is not only used to increase students' reading descriptive text but also make the students able to communicate in learning reading descriptive text ability.

## b. Developing Learning Material of Genre Base Language Teaching

With each developmental step the students progress from:

1) the known towards the unknown

[^5]2) the simplest and easiest elements towards the more complex and difficult. ${ }^{10}$

According to Brown, genres of reading as follows:

1) Academic writing

- General interest articles (in magazines, newspapers, etc.)
- Textbooks, theses
- Essays, papers

2) Job-related reading

- Messages (e.g., phone messages)
- Letters/ e-mail
- Memos (e.g., interoffice)
- Reports (e.g, job evaluations, project reports)
- Schedules, labels, signs, announcements

3) Personal reading

- Newspapers and magazines
- Advertisements (commercials, want ads)
- Novels, short stories, jokes, drama, poetry
- Comic strips, cartoons ${ }^{11}$

In conclusion, the teacher can choose the learning material of
personal reading, that's short stories about descriptive text.
c. Learning Experience of Genre Based Language Teaching (GBLT)

According to Susan Feez in Introduction to Genre Based
Approach divides that, the application of Genre-Based Approach in
the Classroom, the following five cycles:

1) Building the context

Context - building activities include;

[^6]a) presenting the context through pictures, audio - visual material, realia, excursions, field-trips, guest speakers etc.
b) establishing the social purpose through discussions or surveys etc.
2) Modelling and deconstruncting the text

In this stage students:
a) Investigate the structural pattern and language feature of the model
b) compare the model with other examples of the text - type
3) Joint construction of the text

In this stage:
a) students begin to contribute to the construction of whole examples of the text-type
b) the teacher gradually reduces the contribution to text construction, as the students move closer to being able to control the text-type independently.

Joint construction involves negotiation between the teacher and student, not domination by the teacher. Both the teacher and student need to have a shared understanding of the context and of the meanings being negotiated.
4) Independent construction of the text In this stage:
a) students work independently with the text
b) learner performances are used for achievement assessment.

In reading tasks e.g. comprehension activities in response to written material, such as performing a task, sequencing pictures, numbering, ticking or underlining material on a worksheet, answering questions. ${ }^{12}$

Macken and Slade, in Introduction to Genre Based Approach
mentions that, when planning learning experiences for their students, teachers need to know where they're going and why, how far students have come and what this progress means in terms of their positive achievements and future needs.

[^7]Based on above explanation, the researcher chose a learning experience from the four cycles that are given by the expert. It is the learning material from Susan Feez in Introduction to Genre Based Approach, because it will be more understandable by the students.

In conclusion, the teacher can modified the learning experience of Genre Based Language Teaching (GBLT) based on the class condition. The students can be divided into groups or they can do Genre Based Language Teaching (GBLT) individually. The teacher must give the text that suitable of students. The most important is the students who get the right answer must be appreciated by the teacher so they will be motivated and their comprehending well.

## 2. Conventional Method

## a. Definition of conventional method

Cottel \& Millis, in traditional teaching methods vs. teaching through the application mentions that, the teaching methods used may differ in terms of the degree of influence on active learning. ${ }^{13}$ The traditional (or conventional) teaching methods are teacher-centered and include the use of lectures and discussions while the problem solving element is presented by and/or discussed with the instructor;

[^8]the syllabus, the teaching materials and the student assessments are determined by the tutor and transmitted to students in various lectures. ${ }^{14}$

The traditional method teach by the researchers is primarily based on an analytic approach, which begins with words, definitions and translations then analyzes the words into different parts of speech to teach them. The ordinary process of teaching a lesson in such classes is that the teacher usually starts the lesson by explaining the meaning of the new words in Indonesian. Then, the teacher asks a student to read some parts of the reading and helps them to translate those parts into Indonesian. After finishing the reading, the teacher explains the grammatical structures of the reading. Finally, students have to do the exercises after each reading and read their answers to the class accompanied by translating every sentence into Persian. After that, the teacher corrects it if they are wrong. Sometimes, the students do the exercises as homework for the next session. ${ }^{15}$ It means, the teacher more active than the students and still less using media when learning and teaching process.

[^9]
## b. Procedures of Conventional Method

According to Larsen-Freeman in Teaching English as a
Foreign Language mentions that, the procedures of conventional method are:

1) The class reads a text written in target language.
2) Students translate the passage from the target language to the mother tongue.
3) The teacher asks students in their native language if they have any questions, students ask questions and the teacher answer the questions in their native language.
4) Students write out the answers to reading comprehension questions.
5) Students translate new words from the target language to their mother tongue.
6) Students are given a grammar rule and based on the example they apply the rule by using the new words.
7) Students memorize vocabulary.
8) The teacher asks students to state the grammar rule.
9) Students memorize the rule.
10) Errors are corrected by providing the right answer. ${ }^{16}$

Based on above procedures of conventional method, the students were not active when teaching and learning processing.

## 3. Reading Descriptive Text

a. Definition of Reading Descriptive Text

Reading is a complex skill, that is to say that it involves a whole series of lesser skills. ${ }^{17}$ Reading is a fluent process of readers

[^10]combining information from a text and their own background knowledge to build meaning. ${ }^{18}$ Reading is essential skill for learners of English as a second language. ${ }^{19}$ The elements of reading as defined by Armbruster, Lehr and Osborn, in their work, put reading first:

The Research Building Blocks for Teaching Children to Read are phonemic awareness, phonics, vocabulary, fluency and comprehension. "Phonemic awareness is ability to ear, identify and manipulate the individual sounds-phonemes-in spoken words"; phonics is the understanding that there is a predictable relationship between phonemes (the sounds of spoken language) and graphemes (the letters and spellings that represent those sounds in written language)"; "vocabulary refers to the words we must know to communicate effectively"; "fluency is the ability to read a text accurately and quickly and comprehension is the reason for reading".

According to Gillet, we need to know several factors relating to
efficient approaches in reading; they are:

1) Understanding meaning; deducing the meaning of unfamiliar words; relations within the sentences; implications; conceptual meaning; for example: comparison, purpose, cause, and effect.
2) Understanding relationships in the text: text structure; the communicative value of sentences; relations between the parts of a through lexical and grammatical cohesion devices and indicators in discourse.
3) Understanding important points: distinguish the main ideas from supporting detail; recognizing unsupported claims and claims supported by evidence; for example: fact from opinion; extracting salient matters to make summary; following an argument; reading critically and evaluating the text.
4) Reading efficiently: surveying the text, chapters, paragraphs, skimming for the main idea or general impression; scanning to find specifically required information; reading quickly.

[^11]5) Note taking and acknowledgements. ${ }^{20}$

Based above definition, reading is an interactive activity for taking or comprehending the massage or meaning of the text.

Description is a written English text in which the writer describes an object. In this text, the object can be a concrete or abstract object. It can be person, or an animal, or a tree, or a house, or camping. It can be about any topic. ${ }^{21}$ Description gives sense impressions; the feel, sound, taste, smells and look of things. Emotion may be described too, feeling such as happiness, fear, loneliness, gloom, and enjoy. ${ }^{22}$

Describing is also used extensively in many text types, such as information reports, literary descriptions, descriptive, recounts and, due to the needs to classify or describe a process before explaining it, in the opening paragraphs of most explanations. Describing is also a central feature of narrative texts providing the means for developing characterization, sense of place and key themes. Students describe when they are: talking or writing about a picture, writing about a character or place in a story, reporting on an animal. ${ }^{23}$

A good description is a word picture; the reader can imagine the object, place, or a person in his or her mind. It tells the reader how

[^12]something looks, feels, smells, tastes and sounds. ${ }^{24}$ A good description requires careful observation and organization. ${ }^{25}$ Based on the definition of descriptive text, researcher concludes that descriptive text is about information on objects themselves, such as people, things, animals, landscapes and so forth.

## b. The Reading Goals

There are many goals of reading, such as:

1) Reading for identifying important information/ for detail or facts.
2) Reading for main ideas.
3) Reading sequence or organization.
4) Reading for inference.
5) Reading to classify.
6) Reading to evaluate.
7) Reading to compare or contrast. ${ }^{26}$

So, the main goals of reading are to get and find information include content and meaning of the text based on the purpose.
c. The Principal Approaches for Reading

According to Brown, there are some principal approaches for reading comprehension, as follow:

[^13]1) Identify your purpose in reading text
2) Apply spelling rules and conventions for bottom-up decoding
3) Use lexical analysis (prefixes, roots, suffixes, etc.) to determine meaning
4) Guess at meaning (of words, idioms, etc.) when you aren't certain
5) Skim the text for the gist and for main ideas
6) Scan the text for specific information (names, dates, keywords)
7) Use silent reading technique for rapid processing
8) Use marginal notes, outlines, charts, or semantic maps for understanding and retaining information
9) Distinguish between literal and implied meanings
10) Use discourse markers (e.g. "in addition", "however", nevertheless", etc.) to process relationships. ${ }^{27}$

Based on above the principal approaches for reading will give teachers food for throught and reflection as they consider their students become proficient foreign-language readers.

## d. Reading Assessment

Assessment is a tool measure how far the students ability and comprehension of the material. ${ }^{28}$ Types of reading assessment are multiple choice, matching tasks, editing tasks, picture-cued tasks, gapfilling tasks. ${ }^{29}$ Researcher used multiple choice. A multiple choice test item is usually set out in such a way that the candidate is required to select the answer from a number of given options. ${ }^{30}$ Only one of

[^14]which is correct, the marking process is totally objective because the marker is not permitted to the exercise judgment when marking the candidate's answer, agreement has already been reached as to the correct answer to the each item.

Table 1
Indicators of Reading Assessment

| NO | Indicators of Reading Assessment |
| :--- | :--- |
| 1 | Able to identify topic of the text |
| 2 | Able to identify main idea of the text |
| 3 | Able to identify specific information of the text |
| 4 | Able to identify characteristic of people or thing from the text |
| 5 | Able to identify the meaning of underlining word |

e. Text Function of Descriptive text

The function of descriptive text is to describe a particular person, can be describe some quality of the character; place or thing, can be describe of spatial order signals. ${ }^{31}$ It means, the function of descriptive text is to describe everything, so that reader can understand how the things, eventhough the reader never see or know the things.

## f. The Generic Structure of Descriptive Text

Description is a text containing two components i.e.,
identification and description by which a writer describes a person, or

[^15]an animal, or a tree, or a house, or camping as his topic. The identification is to identify the object or phenomenon to be described. The description describes parts, qualities, and characteristics of the parts of the object. ${ }^{32}$ It means, the generic structure of descriptive text are identification that there is in the first paragraph and descriptions that there are in the second paragraph until the last paragraph.

## g. Language Features of Descriptive Text

Dominant grammatical aspects of descriptive text are:

1) Focus on specific participants
2) Use of relating verbs
3) Use of descriptive adjectives
4) Use of simple present tense. ${ }^{33}$

The language features of descriptive text above is not general habits, this is not the rule that must be followed by the writer.

## h. The Example of Descriptive Text

To be more clearly, the example of text structure of descriptive text can be illustrated as follow:

My Best Friend

[^16]I have a lot of friends. But, my closest friend is Prabu Perdana. (Identification)

Prabu is my classmate. He is so handsome and cute. He has short wavy but rather blonde hair, which is always combed neatly. His skin is white. He has bluish back eyes with thick eyebrows and outstanding eyelashes. His round face makes him more impressive. Although Prabu is not so tall, he has a well-built body. People frequently think he is a European or American offspring, but he is actually a Sundanese genuine. He looks more handsome when he is smiling.

Prabu is a pleasing peer. I am happy to spend my time with him. He is always available to help his friends who are in trouble. He is never angry with any friends who try to annoy him. Because he is so smart, most of his classmates seek him to explain any difficulties in any school subjects. I am proud of having such best friend. (Description) ${ }^{34}$

From the text above, it can be known that texts structure or the genres structure of descriptive text contains of identification and description. Text structure it can be concluded that the text structure is

[^17]a way to identifying and understanding the organization of the structure.

## B. Review of Related Findings

There were some researchers that related to this research:

1) Siti Handayani Pulungan in her thesis "The Effect of Genre Based Language Teaching (GBLT) on the Students' Achievement in Writing Procedure Text at MAS Hutapadang Pijorkoling Padangsidimpuan Tenggara in Academic Year 2011/2012" concluded that there was the significant effect of using Genre Based Language Teaching (GBLT) on the Students' Achievement in Writing Procedure Text. The mean score of pre-test of the experimental group was 71 and the mean score of post-test was 74,2 . For the control group, the mean score of pre-test was 70 and the mean score of the post-test was 73,6 . The result of $t$-test was higher than $t$ table $(3,04>2,75)^{35}$
2) Ita Purnamasari Siregar in her thesis "The Effect of Grammar Tanslation Method on Students' Ability in Reading Descriptive Text at Grade X of SMA Negeri 1 Arse in Academic Year 2014/2015" concluded that there was the significant effect of using Grammar Tanslation Method (GTM) on Students' Ability in Reading Descriptive Text. The mean score of pre-test

[^18]of the experimental group was 71,2 and the mean score of post-test was 80,6. For the control group, the mean score of pre-test was 70,5 and the mean score of the post-test was 66,8 . The result of $t$-test was higher than $t$ table $(2,14>2,021)^{36}$
3) Rahma Deni in her thesis "The Effect of Cooperative Learning Teams Games Tournament (TGT) Types on Students' Reading Descriptive Text Mastery at SMP Negeri 5 Padangsidimpuan in Academic Year 2014/2015" concluded that there was the significant effect of using Cooperative Learning Teams Games Tournament (TGT) Types on Students' Reading Descriptive Text Mastery. The mean score of pre-test of the experimental group was 65,59 and the mean score of post-test was 75,27 . For the control group, the mean score of pre-test was 61,5 and the mean score of the post-test was 72,04 . The result of $t$-test was higher than $t$-table $(4,953>2,021)^{37}$
4) Ismail Ibrahim Elshirbini Abd-Elfatah Elashri in his thesis "The Effect of

Genre Based Approach (GBA) to Teaching Writing on the EFL Al-Azhr
Secondary Students' Writing Skills and Their Attitudes toward Writing at
Mansoura University in Academic Year 2010/2011" concluded that there

[^19]was the significant effect of using Genre Based Approach (GBA) to Teaching Writing on the EFL Al-Azhr Secondary Students' Writing Skills and Their Attitudes toward Writing. The mean score of pre-test of the experimental group was 62,3 and the mean score of post-test was 73,2 . For the control group, the mean score of pre-test was 61 and the mean score of the post-test was 65,5 . The result of $t$-test was higher than $t$-table $(6,954>1,665)^{38}$

Based on above explanation, the researcher concludes that the approach can increase students' reading descriptive text ability. In this case, the researcher will do a research by using Genre Based Language Teaching (GBLT) to increase students' reading descriptive text ability. The researcher hopes this research can complete and contribute the previous findings. The researcher conducted the research through the title The Effect of Genre Based Language Teaching (GBLT) on Students Reading Descriptive Text Ability at Grade VIII of SMP Negeri 2 Padangsidimpuan.

## C. Conceptual Framework

Approach in teaching reading descriptive text ability is the important thing that must be considered by the teacher to succeed the reading descriptive

[^20]text ability. The teacher must choose the suitable approach for the students so they are not easy to feel bored when following the reading lesson. For junior high school's students, the teacher can choose the approach which does not only ask them to learn more but also they can enjoy while learn. The students will able to communicate in learning reading descriptive text ability and it will make them easier in comprehending the text. The conceptual framework that will do is as below:

The students are difficult in comprehending the contents of descriptive text, to get bored of reading descriptive text, often have difficulties distinguish between identification and description of the generic structure in descriptive text, and English teacher hasn't method to teach descriptive text.


## Accepted or Rejected

Figure 1: conceptual framework

## D. Hypothesis

Hypothesis is the provisional result of the research. The hypotheses of this research were:

1. There was the significant effect of using Genre Based Language Teaching (GBLT) on students' reading descriptive text ability at grade VIII SMP Negeri 2 Padangsidimpuan $\left(H_{a}\right) . \mu_{1}>\mu_{2}$.
2. There was no significant effect of using Genre Based Language Teaching (GBLT) on students' reading descriptive text ability at grade VIII SMP Negeri 2 Padangsidimpuan $\left(H_{a}\right) . \mu_{1}>\mu_{2}$.

## CHAPTER III

## RESEARCH METHODOLOGY

## A. Place and Schedule of the Research

The location of this research is SMP Negeri 2 Padangsidimpuan. It is located on Ade Irma Suryani Street, No. 1 Padangsidimpuan. This research had been done from $15^{\text {th }}$ September 2016 up to $14^{\text {th }}$ March 2017. The subject of this research was the eighth grade of the students.

## B. Research Design

The kind of this research is quantitative research with experimental method. According to L. R Gay, "Experimental research is the only type of research that can test hypothesis to establish cause and effect." ${ }^{1}$ It means that to know the cause and effect between a variable to another variable we can use experimental research.

The researcher used two classes in this research. One of the classes was taught with Genre Based Language Teaching and called as experimental class or as a treatment. Meanwhile the class as control class was taught by using conventional method or without treatment. It can be seen as the following table.

[^21]Table 2
Research Design

| Class | Pre-test | Treatment | Post-test |
| :--- | :---: | :--- | :---: |
| (VIII-2) <br> Experiment <br> Class | $\sqrt{ }$ | Teaching descriptive text by using GBLT <br> (Genre Based Language Teaching) | $\sqrt{ }$ |
| (VIII-3) <br> Control <br> Class | $\sqrt{ }$ | Teaching descriptive text by using <br> conventional method | $\sqrt{ }$ |

## C. Population and Sample

## 1. Population

Gay and Airasian stated that population is the group of interest to the researcher, the group to which she or he would like the results of the study to be generalizable. ${ }^{2}$ Besides, Ibnu Hadjar stated that population is the big group of individual that have the same general characteristics. ${ }^{3}$ Burhan stated that population is all of the objects that become the target of the research. ${ }^{4}$ It means that the population of this research is all of the VIII class of SMP Negeri 2 Padangsidimpuan. It consisted of 12 classes with 330 students. It can be seen in the following table:

[^22]Table 3
Population of the Research

| No | Class | Students |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | VIII-1 | 26 |  |  |  |
| 2 | VIII-2 | 31 |  |  |  |
| 3 | VIII-3 | 30 |  |  |  |
| 4 | VIII-4 | 24 |  |  |  |
| 5 | VIII-5 | 24 |  |  |  |
| 6 | VIII-6 | 24 |  |  |  |
| 7 | VIII-7 | 21 |  |  |  |
| 8 | VIII-8 | 24 |  |  |  |
| 9 | VIII-9 | 32 |  |  |  |
| 10 | VIII-10 | 34 |  |  |  |
| 11 | VIII-11 | 32 |  |  |  |
| 12 | VIII-12 | 29 |  |  |  |
|  |  |  |  | TOTAL | 330 |

## 2. Sample

Sample is two or more classes that represent the population to be given the treatment or test. According to Gay and Airasian, sample comprises the individuals, items or events selected from a larger group referred to as a population. ${ }^{5}$

In this research, the researcher chose two classes as a sample. They are divided into experiment class and control class. The researcher

[^23]use cluster sampling to take the sample. ${ }^{6}$ Before choosing the sample, the researcher interviewed the English teacher to know the classes that have the similar ability in English. After that, the researcher used normality and homogeneity test.

Normality test is used to know whether the data of research is normal or not. To know the normality, the researcher use Chi-Quadrate formula. The formula is as follow: ${ }^{7}$
$x^{2}=\sum\left(\frac{f_{o}-f_{h}}{f_{h}}\right)$
Where:
$\mathrm{x}^{2}=$ Chi-Quadrate
$\mathrm{f}_{\mathrm{o}}=$ Frequency is gotten from the sample/result of observation (questioner).
$\mathrm{f}_{\mathrm{h}}=$ Frequency is gotten from the sample as image from frequency is hoped from the population.

To calculate the result of Chi-Quadrate, it is used significant level $5 \%(0,05)$ and degree of freedom as big as total of frequency is lessened 3 ( $\mathrm{dk}=\mathrm{k}-3$ ). If result $\mathrm{x}^{2}$ count $<\mathrm{x}^{2}$ table. So, it can be concluded that data is distributed normal.

[^24]Homogeneity test is used to know whether control class and experimental class have the same variant or not. If both classes are same, it can be called homogenous. To find the homogeneity, the researcher use Harley test. The formula is as follow: ${ }^{8}$
$\mathrm{F}=\frac{\text { The biggest variant }}{\text { The smallest variant }}$
Hypotheses is accepted if $F_{(\text {count })} \leq F_{(\text {table })}$
Hypotheses is rejected if $F_{(\text {count })} \geq F_{(\text {table })}$
Hypothesis is rejected if $\mathrm{F} \leq \mathrm{F} \frac{1}{2} a\left(\mathrm{n}_{1-1}\right)\left(1=\mathrm{n}_{2}-1\right)$, while if $\mathrm{F}_{\text {count }}>\mathrm{F}_{\text {table }}$ hypothesis is accepted. It determined with significant level 5\% (0.05) and dk numerator was $\left(\mathrm{n}_{1}-1\right)$, while dk detominators is $\left(\mathrm{n}_{2}-1\right)$.

Based on above explanation, to know the normality and homogeneity of the sample, the researcher gave the pre-test to the class that similar ability in English.

## D. Instrument of Collecting Data

Instrument is a tool that can be used by the researcher to collect the valid and reliable data. In this research, the researcher used a test. The test measured the current status of individuals on school-taught subject. Standardized achievement tests were available for individual curriculum areas such as reading. ${ }^{9}$

[^25]The test that was used in this research was multiple choice test consists of four option $\mathrm{a}, \mathrm{b}, \mathrm{c}$, and d . the researcher used students as participant. In doing test, the researcher as an observer then controls all the students when doing this test and the students involve this research. After validity, the test consisted of 40 questions. 20 questions were for pre-test and 20 questions were for post-test. This test had been given to experiment and control class. To find out the score of the students answer, the researcher give 5 score for each item. Thus maximum score of the test is 100 .

There were some indicators that were used by researcher to measure students' reading descriptive text. It can be seen from the table below:

Table 4
The Indicators of Reading Descriptive Text in Pre-Test

| NO | Indicators | Number of <br> Items | Items | Total <br> Score |
| :---: | :--- | :--- | :--- | :--- |
| 1 | Able to identify topic of the text | $1,6,11,16$ | 4 | 20 |
| 2 | Able to identify main idea of the <br> text | $2,7,12,17$ | 4 | 20 |
| 3 | Able to identify specific <br> information of the text | $3,8,13,18$ | 4 | 20 |
| 3 | Able to identify characteristic of <br> people or thing from the text | $4,9,14,19$ | 4 | 20 |
| 4 | Able to identify the meaning of <br> underlining word | $5,10,15,20$ | 4 | 20 |
| TOTAL |  | 20 | 100 |  |

Table 5
The Indicators of Reading Descriptive Text in Post-Test

| NO | Indicators | Number of <br> Items | Items | Total <br> Score |
| :---: | :--- | :---: | :---: | :---: |
| 1 | Able to identify topic of the text | $1,6,11,16$ | 4 | 20 |
| 2 | Able to identify main idea of the text | $2,7,12,17$ | 4 | 20 |
| 3 | Able to identify specific information <br> of the text | $3,8,13,18$ | 4 | 20 |
| 3 | Able to identify characteristic of <br> people or thing from the text | $4,9,14,19$ | 4 | 20 |
| 4 | Able to identify the meaning of <br> underlining word | $5,10,15,20$ | 4 | 20 |
| TOTAL |  |  | 20 | 100 |

## E. Validity and Reliability Instrument

## 1. Validity

Gay and Airasian stated that validity is the most important characteristic a test or measuring instrument can possess. ${ }^{10}$ In this research, the researcher uses content and item validity to find out the validity of instrument. It is equally important that the items and question cover the full range of the issue or attitude being measure. ${ }^{11}$ The test had been consisted of 50 questions of multiple choice questions. It had been divided into two groups: 25 for pre-test and 25 for post-test.

[^26]To get the validity of the each question had used to list $r$ biserial with $r_{\text {t }}$ in $5 \%$ significant: 0,396 and $1 \%$ significant: 0,463 . So, if $r_{\text {count }}>$ $r_{\text {table }}$ the test is classified valid.

To get the validity of the test, the formula of $r$ pointbiserial can be used as follow:
$R_{p b i=\frac{M_{p-M_{t}}}{S D_{t}}} \sqrt{\frac{p}{q}}$
Where:
$\mathrm{r}_{\mathrm{pbi}}$ : coefficient item validity
$\mathrm{M}_{\mathrm{p}}$ : mean score
$M_{t}$ : mean score of the total score
$\mathrm{SD}_{\mathrm{t}}$ : Standard Deviation of the total score
$P$ : Presentation of the right answer of the item tested validity
$q$ : Presentation of the wrong answer of the item tested validity. ${ }^{12}$

## 2. Reliability

Reliability is the degree of accuracy or precision in the measurements made by a research instrument. ${ }^{13}$ An instrument of the research must be reliable. A reliable test is consistent and dependable. ${ }^{14}$

[^27]Reliability of an instrument can be found by using K-R 20 formula. ${ }^{15}$ The formula is as follow:

$$
\mathrm{R}_{11}=\left(\frac{n}{n-1}\right)\left(\frac{s_{t^{2}}-\sum p q}{s_{t^{2}}}\right)
$$

Where:
$\mathrm{R}_{11}$ : Reliability of the Instrument
N : Total of Question
$\mathrm{St}^{2}$ : Variants Total
$p: \underline{\text { Proporsi Subject who is right Answer(1) }}$
N
$q:$ Proporsi Subject who is Wrong Answer (0)
N

Reliability is a good character of the test that refers to the consistency of the measurement. The test is reliable if $r_{\text {count }}>r_{\text {table }}$ by using formulation KR-20.

## F. Procedures of Data Collection

To collect the data, the researcher had used test. In giving the test, it was divided into two kinds; pre-test and post-test.

## 1. Pre-test

It is a test that is given before doing the treatment to the students. It is needed to know the students' ability in experiment and control class before

[^28]the researcher gives the treatment to experiment class. It is also used to find out the homogeneity and normality level of the sample. The researcher used some steps in giving pre-test. They were:

1) The researcher prepared the test that would be filled by the students. It consisted of 20 questions.
2) The researcher distributed the test paper to both class; experiment and control class.
3) The researcher explained what the students need to do.
4) The researcher gave the times to the students to answer the questions.
5) The researcher collected the test paper.
6) The researcher checked the answer and counts the students' score.

## 2. Treatment

In the treatment, the researcher divided into two class, as experiment class and control class, and there are different way in teaching descriptive text between experimental and control class. The researcher choose group A using method that is Genre Based Language Teaching (as experiment class) and class B without using method (as control class). The researcher used some steps, they were:

1) The researcher building the context for the targeted text which discuss of linguistic features (generic structure and language features) of descriptive text.
2) The researcher presented the text of descriptive text, about genres, language feature and practice of reading skill.
3) The researcher divided the students into teams or couple which students were ordered to write another descriptive text that same with the example model of text by themselves.
4) The researcher presented the product of text.

## c. Post-test

It is a test that is given after the researcher gave the treatment to experiment class. It is used to know the difference score of experiment and control class and the effect of treatment, whether it has an effect or not. The researcher used some steps in giving post-test. They are:

1) The researcher prepared the test that would be filled by the students. It consists of 20 questions.
2) The researcher distributed the test paper to both class; experiment and control class.
3) The researcher explained what the students need to do.
4) The researcher gave the times to the students to answer the questions.
5) The researcher collected the test paper.
6) The researcher checked the answer and counts the students' score.

## G. Technique of Analyzing Data

The techniques of analyzing data that was used by the researcher were:

## 1. Scoring Technique

To know the score, the researcher use the steps were:
a. Total maximal score is 100
b. True answer would be given 4 score and false answer not give the score. Total score $5 \times 20=100$
c. Maximal score $=\frac{\text { total of true answer }}{\text { total of test }}$

## 2. Requirement test

a. Normality test

To know the normality, the researcher use Chi-Quadrate formula. The formula is as follow:

$$
x^{2}=\sum\left(\frac{f_{o}-f_{h}}{f_{h}}\right)
$$

Where:
$x^{2}=$ Chi-Quadrate
$f_{0}=$ Frequency is gotten from the sample/result of observation (questioner).
$f_{h}=$ Frequency is gotten from the sample as image from frequency is hoped from the population.

To calculate the result of Chi-Quadrate, it used significant level $5 \%(0,05)$ and degree of freedom as big as total of frequency was lessened $3(\mathrm{dk}=\mathrm{k}-3)$. If result $\mathrm{x}^{2}{ }_{\text {count }}<\mathrm{x}^{2}$ table. So, it could be concluded that data was distributed normal. ${ }^{16}$
b. Homogeneity Test

To find the homogeneity, the researcher use Harley test. The formula is as follow:
$\mathrm{F}=\frac{\text { the biggest variant }}{\text { the smallest variant }}$
Hypotheses is accepted if $F_{(\text {count })} \leq F_{(\text {table })}$
Hypotheses is rejected if $F_{(\text {count })} \geq F_{(\text {table })}$
Hypothesis is rejected if $\mathrm{F} \leq \mathrm{F} \frac{1}{2} a\left(\mathrm{n}_{1}-1\right)\left(1=\mathrm{n}_{2}-1\right)$, while if $\mathrm{F}_{\text {count }}>\mathrm{F}_{\text {table }}$ hypothesis is accepted. It determined with significant level 5\% (0.05) and dk numerator was $\left(n_{1}-1\right)$, while dk detominators is $\left(n_{2}-1\right) .{ }^{17}$

## 3. Hypothesis test

Hypothesis is the provisional result of the research. So, the researcher needs to analyze the data which have been divided into two groups: experiment class and control class.

Before analyze the data to find the hypothesis, the researcher has calculated the normality and homogeneity of the post-test. It is used to

[^29]know whether the data is normal and homogenous or not. If the data is normal and homogenous, the formula that must be used to test hypothesis is $t$-test. The formula is as follow:
$T t=\frac{X_{1}-X_{2}}{\sqrt{\left(\frac{\left(n_{1}-1\right) s_{1}^{2}+\left(n_{2}-1\right) s_{2}^{2}}{n_{1}+n_{2}-2}\right)\left(\frac{1}{n_{1}}+\frac{1}{n_{2}}\right)}}$
Where:
t : the value which the statistical significant
$\overline{\mathrm{X}}_{1}$ : the average score of the experimental class
$\overline{\mathrm{X}}_{2}$ : the average score of the control class
$\mathrm{s}_{1}{ }^{2}$ : deviation of the experimental class
$\mathrm{s}_{2}{ }^{2}$ : deviation of the control class
$\mathrm{n}_{1}$ : number of experimental
$\mathrm{n}_{2}$ : number of control class. ${ }^{18}$
But if the data is not normal and homogenous, the formula that must be used to test hypothesis is Chi-Quadrate. The formula is as follow:
$$
x^{2}=\sum\left(\frac{f_{o}-f_{h}}{f_{h}}\right)
$$

Where:
$x^{2}=$ Chi-Quadrate

[^30]
# $\mathrm{f}_{\mathrm{o}}=$ Frequency is gotten from the sample/result of observation (questioner). 

$\mathrm{f}_{\mathrm{h}}=$ Frequency is gotten from the sample as image from frequency is hoped from the population.

To calculate the result of Chi-Quadrate, it is used significant level $5 \%(0,05)$ and degree of freedom as big as total of frequency is lessened 3 ( $\mathrm{dk}=\mathrm{k}-3$ ). If result $\mathrm{x}^{2}$ count $<\mathrm{x}^{2}$ table. . So, it can be concluded that data is distributed normal. ${ }^{19}$

[^31]
## CHAPTER IV

## DATA ANALYSIS

As mentioned is earlier chapter, in order to evaluate the effect of using genre based language teaching on students' reading descriptive text ability, the researcher has calculated the data using pre-test and post-test. The researcher used the formulation of T-test to test the hypothesis. Next, the researcher described the data as follow:

## A. Description of Data

1. Description of Data before Using Genre Based Language Teaching
a. Score of Pre-test Experimental Class

In pre-test of experimental class, the researcher calculated the result that had been gotten by the students in answering the question (test). The score of pre-test experimental class can be seen in the following table:

Table 6
The Score of Experimental Class in Pre-test

| Total | 1735 |
| :---: | :---: |
| Highest score | 75 |
| Lowest score | 30 |
| Mean | 59.34 |
| Median | 62.86 |
| Modus | 57.5 |
| Range | 45 |
| Interval | 8 |
| Standard deviation | 12.16 |


| Variants | 160.70 |
| :---: | :---: |

Based on the above table the total score of experiment class in pretest was 1735 , mean was 59.34 , standard deviation was 12.16 , varians was 160.70 , median was 62.86 , range was 45 , modus was 57.5 , interval was 8 . The researcher got the highest score was 75 and the lowest score was 30 . It can be seen on appendix 19. Then, the computed of the frequency distribution of the students' score of experiment class can be applied into table frequency distribution as follow:

Table 7
Frequency Distribution of Students' Score

| No | Interval | Mid Point | Frequency | Percentages |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | $30-37$ | 33.5 | 3 | $9.68 \%$ |  |  |  |  |
| 2 | $38-45$ | 41.5 | 4 | $12.9 \%$ |  |  |  |  |
| 3 | $46-53$ | 49.5 | 5 | $16.13 \%$ |  |  |  |  |
| 4 | $54-61$ | $\mathbf{5 7 . 5}$ | 9 | $29.03 \%$ |  |  |  |  |
| 5 | $62-69$ | 65.5 | 5 | $16.13 \%$ |  |  |  |  |
| 6 | $70-77$ | 73.5 | 5 | $16.13 \%$ |  |  |  |  |
| $i=8$ |  |  |  |  |  |  | 31 | $100 \%$ |

From the table above, the students' score in class interval between 30 - 37 was 3 students ( $9.68 \%$ ), class interval between $38-45$ was 4 students (12.9 \%), class interval between $46-53$ was 5 students ( $16.13 \%$ ), class interval between 54 - 61 was 9 students ( $29.03 \%$ ), class interval between 62
-69 was 5 students ( $16.13 \%$ ), and the last class interval between $70-77$ was 5 students ( $16.13 \%$ ).

In order to get description of the data clearly and completely, the researcher presents them in histogram on the following figure:


From the histogram above, the students' score 33.5 was 3 students, the students' score 41.5 was 4 students, the students' score 49.5 was 5 students, the students' score 57.5 was 9 students, the students' score 65.5 was 5 students, and the last students' score 73.5 was 5 .
b. Score of Pre-Test Control Class

In pre-test of control class, the researcher calculated the result that had been gotten by the students in answering the question (test). The score of pre-test control class can be seen in the following table:

Table 8
The Score of Control Class in Pre-test

| Total | 1545 |
| :---: | :---: |
| Highest score | 70 |
| Lowest score | 25 |
| Mean | 53.86 |
| Median | 57.3 |
| Modus | 51.5 |
| Range | 45 |
| Interval | 8 |
| Standard deviation | 11.68 |
| Variants | 150.26 |

Based on the above table the total score of experiment class in pretest was 1545 , mean was 53.86 , standard deviation was 11.68 , varians was 150.26 , median was 57.3 ., range was 45 , modus was 51.5 , interval was 8 . The researcher got the highest score was 70 and the lowest score was 25 . It can be seen on appendix 19. Then, the computed of the frequency distribution of the students' score of control class can be applied into table frequency distribution as follow:

Table 9
Frequency Distribution of Students' Score

| No | Interval | Mid Point | Frequency | Percentages |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | $25-32$ | 28.5 | 3 | $10 \%$ |  |  |  |  |
| 2 | $33-40$ | 36.5 | 3 | $10 \%$ |  |  |  |  |
| 3 | $41-48$ | 44.5 | 4 | $13.33 \%$ |  |  |  |  |
| 4 | $49-56$ | $\mathbf{5 2 . 5}$ | 10 | $33.33 \%$ |  |  |  |  |
| 5 | $57-64$ | 60.5 | 6 | $20 \% \%$ |  |  |  |  |
| 6 | $65-72$ | 68.5 | 4 | $13.33 \%$ |  |  |  |  |
| $\mathrm{i}=8$ |  |  |  |  |  |  | 30 | $100 \%$ |

From the table above, the students' score in class interval between 25 - 32 was 3 students ( $10 \%$ ), class interval between 33 - 40 was 3 students (10 \%), class interval between 41 - 48 was 4 students (13.33 \%), class interval between $49-56$ was 10 students ( $33.33 \%$ ), class interval between $75-64$ was 6 students ( $20 \%$ ), and the last class interval between $65-72$ was 4 students (13.33 \%).

In order to get description of the data clearly and completely, the researcher presents them in histogram on the following figure:


From the histogram above, the students' score 28.5 was 3 students, the students' score 36.5 was 3 students, the students' score 44.5 was 4 students, the students' score 52.5 was 10 students, the students' score 60.5 was 6 students, and the last students' score 68.5 was 4 students.
c. The Comparison between Description Data Pre-Test of Control Class and Experimental Class

Based on above histogram, researcher compared between description data pre-test of control class and description data of experimental class on the following figure:


From the histogram above, the students' scores of experimental class was higher than the students' scores of control class.
2. Description of Data After Using Genre Based Language Teaching
a. Score of Post-Test Experimental Class

In post-test of experimental class, the researcher calculated the result that had been gotten by the students in answering the question (test) after the researcher did the treatment by using genre based language teaching. The score of post-test experimental class can be seen in the following table:

Table 10 The Score of Experimental Class in Post-test

| Total | 2575 |
| :---: | :---: |
| Highest score | 100 |
| Lowest score | 65 |
| Mean | 87.84 |
| Median | 87 |
| Modus | 86.52 |
| Range | 35 |
| Interval | 6 |
| Standard deviation | 7.92 |
| Variants | 54.46 |

Based on the above table the total score of experiment class in posttest was 2575 , mean was 87.84 , standard deviation was 7.92 , varians was 54.46 , median was 87 , range was 35 , modus was 86.52 , interval was 6 . The researcher got the highest score was 100 and the lowest score was 65 . It can be seen on appendix 20. Then, the computed of the frequency distribution of the students' score of experiment class can be applied into table frequency distribution as follow:

Table 11
Frequency Distribution of Students' Score

| No | Interval | Mid Point | Frequency | Percentages |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | $65-70$ | 67.5 | 2 | $6.45 \%$ |  |  |  |  |
| 2 | $71-76$ | 73.5 | 4 | $12.90 \%$ |  |  |  |  |
| 3 | $77-82$ | 79.6 | 8 | $25.80 \%$ |  |  |  |  |
| 4 | $83-88$ | $\mathbf{8 5 . 5}$ | 10 | $32.26 \%$ |  |  |  |  |
| 5 | $89-94$ | 91.5 | 4 | $12.90 \%$ |  |  |  |  |
| 6 | $95-100$ | 97.5 | 3 | $9.68 \%$ |  |  |  |  |
| $i=6$ |  |  |  |  |  |  | 31 | $100 \%$ |

From the table above, the students' score in class interval between 65

- 70 was 2 students ( $6.45 \%$ ), class interval between $71-76$ was 4 students (12.90 \%), class interval between $77-82$ was 8 students ( $25.80 \%$ ), class interval between $83-88$ was 10 students ( $32.26 \%$ ), class interval between 89 - 94 was 4 students ( $12.90 \%$ ), and the last class interval between $95-100$ was 3 students ( $9.68 \%$ ).

In order to get description of the data clearly and completely, the researcher presents them in histogram on the following figure:


From the histogram above, the students' score 67.5 was 2 students, the students' score 73.5 was 4 students, the students' score 79.5 was 8 students, the students' score 85.5 was 10 students, the students' score 91.5 was 4 students, and the last the students' score 97.5 was 3 students.

## b. Score of Post-Test Control Class

In post-test of control class, the researcher calculated the result that had been gotten by the students in answering the question (test) after the researcher taught the reading descriptive text by using conventional strategy. The score of post-test control class can be seen in the following table:

Table 12
The Score of Control Class in Post-test

| Total | 2040 |
| :---: | :---: |
| Highest score | 85 |
| Lowest score | 50 |
| Mean | 72.9 |
| Median | 72.18 |
| Modus | 71.52 |
| Range | 35 |
| Interval | 6 |
| Standard deviation | 7.98 |
| Variants | 56.21 |

Based on the above table the total score of control class in post-test was 2040, mean was 72.9 , standard deviation was 7.98 , varians was 56.21 , median was 72.18 , range was 35 , modus was 71.52 , interval was 6 . The researcher got the highest score was 85 and the lowest score was 50 . It can be seen on appendix 20 . Then, the computed of the frequency distribution of the students' score of control class can be applied into table frequency distribution as follow:

Table 13
Frequency Distribution of Students' Score

| No | Interval | Mid Point | Frequency | Percentages |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | $50-55$ | 52.5 | 2 | $6.67 \%$ |  |  |  |  |
| 2 | $56-61$ | 58.5 | 4 | $13.33 \%$ |  |  |  |  |
| 3 | $62-67$ | 64.5 | 8 | $26.67 \%$ |  |  |  |  |
| 4 | $68-73$ | $\mathbf{7 0 . 5}$ | 9 | $30 \%$ |  |  |  |  |
| 5 | $74-79$ | 76.5 | 4 | $13.33 \%$ |  |  |  |  |
| 6 | $80-85$ | 82.5 | 3 | $10 \%$ |  |  |  |  |
| $i=5$ |  |  |  |  |  |  | 30 | $100 \%$ |

From the table above, the students' score in class interval between 50 - 55 was 2 students ( $6.67 \%$ ), class interval between $56-61$ was 4 students (13.33 \%), class interval between $62-67$ was 8 students ( $26.67 \%$ ), class interval between $68-73$ was 9 students ( $30 \%$ ), class interval between $74-$ 79 was 4 students ( $13.33 \%$ ), and the last class interval between $80-85$ was 3 students ( $10 \%$ ).

In order to get description of the data clearly and completely, the researcher presents them in histogram on the following figure:


Figure 6: Description Data Post-Test of Control Class

From the histogram above, the students' score 52.5 was 2 students, the students' score 58.5 was 4 students, the students' score 64.5 was 8 students, the students' score 70.5 was 9 students, the students' score 76.5 was 4 students, and the last the students' score 82.5 was 3 students.
c. The Comparison between Description Data Post-Test of Control

## Class and Experimental Class

Based on above diagram, researcher compared between description data pre-test of control class and description data of experimental class on the following figure:


Figure 7: Description Data Post-Test of Control Class and Experimental Class

From the histogram above, the students' scores of experimental class was higher than the students' scores of control class.
B. Technique of Data Analysis

## 1. Requirement Test

a. Normality and Homogeneity Pre-Test

1) Normality of Experimental and Control Class in Pre-Test

Table 14
Normality and Homogeneity in Pre-Test

| Class | Normality <br> Test |  | Homogeneity <br> Test |  |
| :---: | :---: | :---: | :---: | :---: |
|  | $\mathrm{x}_{\text {count }}$ | $\mathrm{X}_{\text {table }}$ | $\mathrm{f}_{\text {count }}$ | $\mathrm{f}_{\text {table }}$ |
| Experiment Class | 0.46 | 11.070 | $1.07<1.85$ |  |
| Control Class | -1.97 | 11.070 |  |  |

Based on the above table researcher calculation, the score of experiment class $\mathrm{Lo}=0.46<\mathrm{Lt}=11.070$ with $\mathrm{n}=31$ and control class $\mathrm{Lo}=-1.97<\mathrm{Lt}=11.070$ with $\mathrm{n}=30$, and real level $\alpha 0.05$. Cause Lo < Lt in the both class. $\mathrm{So}, \mathrm{H}_{\mathrm{a}}$ was accepted. It means that experiment class and control class were distributed normal. It can be seen in appendix 19.
2) Homogeneity of Experimental and Control Class in Pre-test

The coefficient of $\mathrm{F}_{\text {count }}=1.07$ was compared with $\mathrm{F}_{\text {table }}$. Where $\mathrm{F}_{\text {table }}$ was determined at real $\alpha 0.05$, and the different numerator $\mathrm{dk}=\mathrm{N}-1=31-1=30$ and denominator $\mathrm{dk} \mathrm{N}-1=30-1=29$. So, by using the list of critical value at F distribution is got $\mathrm{F}_{\mathbf{0 . 0 5}}=1.85$. It showed that $\mathrm{F}_{\text {count }} 1.07<\mathrm{F}_{\text {table }} 1.85$. So, the researcher concluded that the variant from the data of the Students' Reading Descriptive Text Ability at SMPN 2 Padangsidimpuan by experimental and control class was homogenous. The calculation can be seen on the appendix 17.

## b. Normality and Homogeneity Post-Test

## 1) Normality of Experimental and Control Class in Post-Test

Table 15
Normality and Homogeneity in Post-Test

| Class | Normality <br> Test |  | Homogeneity <br> Test |  |
| :---: | :---: | :---: | :---: | :---: |
|  | $\mathrm{x}_{\text {count }}$ | $\mathrm{x}_{\text {table }}$ | $\mathrm{f}_{\text {count }}$ | $\mathrm{f}_{\text {table }}$ |
| Experiment Class | 3.84 | 11.070 | $1.03<1.85$ |  |
| Control Class | 5.32 | 11.070 |  |  |

Based on the table above researcher calculation, the score of experiment class $\mathrm{Lo}=3.84<\mathrm{Lt}=11.070$ with $\mathrm{n}=31$ and control class $\mathrm{Lo}=5.32<\mathrm{Lt}=11.070$ with $\mathrm{n}=30$, and real level $\alpha 0.05$. Cause Lo < Lt in the both class. So, $\mathrm{H}_{\mathrm{a}}$ was accepted. It means that experiment class and control class were distributed normal. It can be seen in appendix 20.

## 2) Homogeneity of Experimental and Control Class in Post-test

The coefficient of $\mathrm{F}_{\text {count }}=1.03$ was compared with $\mathrm{F}_{\text {table }}$. Where $\mathrm{F}_{\text {table }}$ was determined at real $\alpha 0.05$, and the different numerator $\mathrm{dk}=\mathrm{N}-1=31-1=30$ and denominator $\mathrm{dk} \mathrm{N}-1=30-1=29$. So, by using the list of critical value at F distribution is $\operatorname{got} \mathrm{F}_{0.05}=1.85$. It showed that $\mathrm{F}_{\text {count }} 1.03<\mathrm{F}_{\text {table }} 1.85$. So, the researcher concluded that the variant from the data of the Students' Reading Descriptive Text at

SMPN 2 Padangsidimpuan by experimental and control class was homogenous. The calculation can be seen on the appendix 18.

## 2. Hypothesis Test

After calculated the data of post-test, researcher has found that posttest result of experiment and control class is normal and homogenous. Based on the result, researcher used parametric test by using T-test to analyze the hypothesis. Hypothesis alternative $\left(\mathrm{H}_{\mathrm{a}}\right)$ of the research was "There was the significant effect of Genre Based Language Teaching (GBLT) on Students’ Reading Descriptive Text Ability". The calculation can be seen on the appendix 21.

Table 16
Result of T-test from the Both Averages

| Pre-test |  | Post-test |  |
| :---: | :---: | :---: | :---: |
| $\mathrm{t}_{\text {count }}$ | $\mathrm{t}_{\text {table }}$ | $\mathrm{t}_{\text {count }}$ | $\mathrm{t}_{\text {table }}$ |
| 0.86 | 1.671 | 7.926 | 1.671 |

$\mathrm{H}_{\mathrm{a}}: \mu_{1}>\mu_{2}$

Where:
$\mathrm{H}_{\mathrm{a}}: \mu_{1}>\mu_{2}$ "There was a significant effect of genre based language teaching (GBLT) on students' reading descriptive text".

Based on researcher calculation, researcher found that $t_{\text {count }} 0.86$ while $\mathrm{t}_{\text {table }} 1.671$ with opportunity $(1-\alpha)=1-5 \%=95 \%$ and $\mathrm{dk}=\mathrm{n}_{1}+\mathrm{n}_{2}-2=31$ $+30-2=59$. Cause $\mathrm{t}_{\text {count }}>\mathrm{t}_{\text {table }}(7.926>1.671)$, it means that hypothesis $\mathrm{H}_{\mathrm{a}}$
was accepted and $\mathrm{H}_{0}$ was rejected. So, there was the significant effect of Genre Based Language Teaching (GBLT) on Students' Reading Descriptive Text. In this case, the mean score of experimental class by using genre based language teaching (GBLT) was 88.21 and mean score of control class was 77.5 by using conventional strategy. The calculation can be seen on the appendix 20.

## C. Discussion

Based on the related findings, the researcher discussed the result of this research and compared with the related findings. It also discussed with the theory that has been stated by the researcher. First, Ita Purnamasari Siregar, et.al., ${ }^{1}$ showed that the experimental group got 70.5. Second, Siti Handayani Pulungan ${ }^{2}$ showed that the experimental group got 70 for the mean score of pre-test. Ita's pre-test result was higher than Siti's result. Third, Rahma Deni ${ }^{3}$ showed that the experimental group got 61.5 for the mean score of pre-test. The last, Ismail

[^32]Ibrahim ${ }^{4}$ showed that the experimental group got 50,05 . Ismail's pre-test result was lowest than Rahma's, Ita's, and Siti's result.

Meanwhile, the researcher got the mean score of pre-test of the experimental group was 59.34 and it was the lowest pre-test result than Ita's, Rahma's and Siti's result but higest pre-test result than Ismail's of the related findings. From the above description, it can be seen that the highest mean score of pre-test of the experimental group was gotten by Ita's result where the mean score of pre-test was 70.5 and the lowest mean score of pre-test of the experimental group was gotten by Ibrahim in his thesis where the mean score of pre-test was 50,05 . It means, before using Genre Based Language Teaching (GBLT), students' score was low and for the researcher, the mean score of pretest of the experimental group was under the standardization where the standardization mark is 75 .

Then, for the post-test result, Ita Purnamasari Siregar et.al. ${ }^{5}$ got the experimental class' score was 80.6 . Ismail Ibrahim $^{6}$ got the experimental class' score was 80.5 , and it was lower than Ita's result. Rahma Deni ${ }^{7}$ got the experimental class' score was 75.27 , and it was lower than Ita's and Ismail's

[^33]result, and Siti Handayani Pulungan ${ }^{8}$ got the experimental class' score was 74.2, it was lower than Ita's, Ismail's and Rahma's result. Beside, the researcher got the mean score for experimental class after using Genre Based Language Teaching (GBLT) was 87.84 and it was the highest score among the related findings.

From the description, it can be seen that the highest mean score of posttest of the experimental group was gotten by the researcher where the mean score of post-test was 87.84 and the lowest mean score of post-test was gotten by Siti in her thesis where the mean score of post-test was 74.2. So, among the mean scores of post-test, the mean scores have increased than pre-test. Where, for the researcher result, the mean score of post-test was passed the standardization where the standardization mark is 75 .

Based on the result, the researcher has got the significant effect of using Genre Based Language Teaching (GBLT), so have the researchers who mentioned in related finding. Ismail Ibrahim $^{9}$ found that $t_{0}$ was higher than $t_{t}$ (6,954>1,665), Rahma Deni ${ }^{10}$ found that $t_{0}$ was higher than $t_{t}(4.953>2.021)$, Siti Handayani Pulungan ${ }^{11}$ found that $t_{0}$ was higher than $t_{t}(3.04>2.75)$, Ita Purnama Sari ${ }^{12}$ found that $t_{0}$ was higher than $t_{t}(2.14>2.021)$. From the description, t -test result from Ismail Inrahim et.al. was the highest between

[^34]Rahma's, Siti's and Ita's result and t-test result from Ita was lowest among them. Beside, the researcher also found that $t_{0}$ is higher than $t_{t}$ where $t_{0}$ was 7.926 and $t_{t}$ was 1.671 ( $7.926>1.671$ ). Where, the researcher result of $t$-test was the highest among the related findings result. So, the result of t-test of Genre Based Language Teaching (GBLT) highest than the result t -test of related findings. It can be seen that among the researches, the using of GBLT gave the effect to students’ reading descriptive text abilityespecially at grade VIII SMP Negeri 2 Padangsidimpuan where it is suitable with the theory from Carell in B. Sadeghi, The Effects of Genre-based Instruction on ESP Learners' Reading Comprehension said that, teaching genre based instruction demonstrate positive outcomes of teaching genre structure on reading recall or comprehension. ${ }^{13}$ It means the theory has been proved where the students able to communicate in their class and easy in remembering what students were learned. Beside that, the students could think or make the sentences to describe something and to make their friends know what the text about. This proofs show that GBLT is suitable to be applied in teaching reading descriptive text ability because it has been proven by the previous researches and the theory. So, GBLT has given the significant effect to the research that has been done by the researcher or the other researcher who mentioned in related finding.

[^35]From the result of the research that is previously stated, it was proved that the students of the experimental group who were taught reading descriptive text ability by using GBLT got better result than the control group that were taught reading descriptive text ability by using conventional method.

## D. Threats of the Research

The researcher found the threats of the research as follows:

1. The students were not serious in answering the pre-test and post-test. Some of them still did cheating. It made the answer of the test was not pure because they did not do it by themselves.
2. The students were noisy while the learning process. They were not concentrating in following the learning process. Some of them talked to their friends and some of them did something outside the teacher's rule. Of course it made them can not get the teacher's explanation well and gave the impact to the post-test answer.
3. The students were too enthusiastic in answering the adjective, specific participants and the generic structures of the text, there are identification and description, it made them be not followed the rule of Genre Based Language Teaching (GBLT). When the teacher gives other text, the students feel confused establish which the identification and description on the text.

## CHAPTER V

## CONCLUSION AND SUGGESTION

## A. Conclusion

Based on the result of the research, the conclusions of this research are:

1. Before using Genre Based Language Teaching (GBLT), students' reading descriptive text ability was still low. It can be seen by highest score of experimental class in pre test was 75 only and the lowest score was 30 . While the highest score of control class was 70 and the lowest score was 25. Besides, the mean score of the experimental class with using conventional method was 59.34 and the control class with using conventional method was 53.86, it is on the level low.
2. After using Genre Based Language Teaching (GBLT), researcher got the highest score of experimental class became 100 and the lowest score 65 and the mean score of the experimental class was higher than control class ( $87.84>72.9$ ). It means that by using Genre Based Language Teaching (GBLT), students' reading descriptive text ability was higher.
3. Based on the calculation of $t_{\text {count }}$ was 7.926 was higher than $t_{\text {table }}$ was 1.671 and the mean score of experimental class in post test was 87.84 , meanwhile the mean score of control class in post test was 72.9 , it was higher than control class (87.84>72.9). It can be concluded that there was the significant effect of Genre Based Language Teaching (GBLT) on Students' Reading

Descriptive Text Ability at Grade VIII SMP Negeri 2 Padangsidimpuan where $H_{a}$ was accepted and $H_{0}$ was rejected.

## B. Suggestion

Based on the above conclusion, the researcher has some suggestions as
follow:

1. For headmaster, provide tools and media complete in teaching reading descriptive text ability. That students' increase to learning English with tool and media.
2. For the English teacher of SMP Negeri 2 Padangsidimpuan, it is very wise to apply the innovative approach such as Genre Based Language Teaching (GBLT) in teaching reading descriptive text ability.
3. For the students, it is hoped to use Genre Based Language Teaching (GBLT), because it can make them to be able to communicate or communicative competence.

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## CURRICULUM VITAE <br> 

A. Identity
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Demikian surat ini disampaikan, atas perhatian dan kesediaan Bapak/Ibu kami ucapkan terimakasih.

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Dengan hormat, Dekan Fakultas Tarbiyah dan Ilmu Keguruan Institut Agama Islam Negeri Padangsidimpuan menerangkan bahwa :

| Nama | $:$ Nilma Sari |
| :--- | :--- |
| NIM | $: 133400018$ |
| Fakultas/Jurusan | $:$ Tarbiyah dan llmu Keguruan/TBI |
| Alamat | $:$ Lumban Dolok Kecamatan Siabu |
| adalah benar Mahasiswa IAIN Padangsidimpuan yang sedang menyelesaikan Skripsi |  |
| dengan Judul "The Effect of Genre Based Language Teaching (GBLT) on Students' |  |
| Reading Descriptive Text at VIII Grade of SMP Negeri 2 Padangsidimpuan". |  |
| Sehubungan dengan itu, kami mohon bantuan Bapak/lbu untuk memberikan data dan |  |
| informasi sesuai dengan maksud judul diatas. |  |

Demikian disampaikan, atas kerja sama yang baik diucapkan terimakasih.


# PEMERINTAH KOTA PADANGSIDIMPUAN DINAS PENDIDIKAN DAERAH KOTA PADANGSIDIMPUAN SMP NEGERI 2 (SSN) PADANGSIDIMPUAN Jalan. Ade Irma Suryani Nasution No. 1 Kel. Ujung Padang Telp. (0634) 22268 NSS : 201072002002 NIS : 200020 NPSN : 10212235 AKREDITASI-A Web Site : www.smpn2pasid.co.ce KOTA PADANGSIDIMPUAN <br> KODE POS : 22725 

## SURAT KETERANGAN PENELITIAN

Nomor. 823.4/019/SMP.2/2017

SMP Negeri 2 Padangsidimpuan di Kecamatan Padangsidimpuan Selatan Kota ssidimpuan Provinsi Sumatera Utara dengan ini menerangkan bahwa :

| Nama lengkap | $:$ | NILMA SARI |
| :--- | :--- | :--- |
| NI M | $: 133400018$ |  |
| Fakultas/Jurusan | $:$ | Tarbiyah dan Ilmu Keguruan / TBI |

Alamat : Lumban Dolok Kecamatan Siabu benar telah melaksanakan riset dan pengumpulan data sesuai dengan Surat Permohonan lelaksanaan Penelitian Untuk Penulisan Skripsi dari Institut Agama Islam Negeri sidimpuan dengan Nomor : B - 15 / In.14/E.4c/TL.00/01/2017 tanggal 09 Januari 2017 angka penelitian untuk penulisan skripsi dengan judul :

EFFECT OF GENRE BASED LANGUAGE TEACHING (GBLT) ON ENTS' READING DESCRIPTIVE TEXT AT VIII GRADE OF SMP NEGERI 2 NGSIDIMPIUAN"

Surat Keterangan ini diperbuat dengan sebenarnya untuk dapat dipergunakan


## APPENDIX 1

## Experiment Class

# RENCANA PELAKSANAAN PEMBELAJARAN <br> (RPP) 

| Nama Sekolah | : SMP Negeri 2 Padangsidimpuan |
| :--- | :--- |
| Mata Pelajaran | $:$ Bahasa Inggris |
| Kelas/Semester | $:$ VIII / II |
| Alokasi Waktu | $: 2 \times 40$ menit |

## Standar Kompetensi: Memahami makna dalam esei pendek sederhana berbentuk descriptif untuk berinteraksi dengan lingkungan sekitar.

| Kompetensi Dasar : Membaca nyaring bermakna teks fungsional dan esei pendek |  |
| :--- | :--- |
|  | sederhana berbentuk descriptif dengan menggunakan ragam |
|  | bahasa tulis secara akurat, lancar dan berterima untuk |
|  | berinteraksi dengan lingkungan sekitar. |
| Jenis teks | : Descriptif teks (describing people, animal, thing and place) |

Aspek/ skill : Membaca

Indikator :

- Membaca dan memahami teks descriptive
- Mengidentifikasi ide pokok dalam teks descriptive
- Mampu mengidentifikasi generic structure yang ada didalam teks descriptive
- Mampu mengidentifikasi language feature yang ada didalam teks descriptive
- Memahami informasi penting yang ada dalam teks descriptive
- Mengidentifikasi cir-ciri orang, hewan, benda, atau tempat yang dideskripsikan dalam teks descriptive
- Menjawab pertanyaan berdasarkan informasi yang ada dalam essay pendek berbentuk descriptive


## Tujuan pembelajaran:

Pada akhir pebelajaran diharapkan:

- Siswa mampu membaca dan memahami teks descriptive
- Siswa mampu mengidentifikasi ide pokok dalam teks descriptive
- Siswa mampu mengidentifikasi generic structure yang ada didalam teks descriptive
- Siswa mampu mengidentifikasi language feature yang ada didalam teks descriptive
- Siswa mampu memahami informasi penting yang ada dalam teks descriptive
- Siswa mampu mengidentifikasi cir-ciri orang, hewan, benda atau tempat yang dideskripsikan dalam teks descriptive
- Siswa mampu menjawab pertanyaan berdasarkan informasi yang ada dalam essay pendek berbentuk descriptive

Materi Pembelajaran: Teks monolog berbentuk descriptive

Metode Pembelajaran: GBLT (Genre Based Language Teaching)

## Langkah-Langkah Kegiatan

## A. Pendahuluan

1. Guru memasuki kelas dengan mengucapkan salam dan menyapa siswa dengan bahasa Inggris.
2. Guru meminta siswa untuk membuka kelas dengan berdo'a.
3. Guru mengabsen siswa.
4. Guru menjelaskan pentingnya materi yang akan dipelajari berikut kompetensi yang harus dikuasai siswa.
5. Guru menjelaskan secara ringkas tentang materi yang akan dipelajari.

## B. Kegiatan Inti

Dalam kegiatan inti, antara lain:

1. Building Knowledge of the Field:
a. Guru menyajikan bahan ajar yang berhubungan dengan pelajaran menggunakan alat visualisasi, seperti papan tulis atau media yang tersedia untuk menjelaskan pokok bahasan yang disampaikan
b. Guru menjelaskan generic structure, language feature dan isi dari teks descriptif.
2. Modeling of Text:
a. Guru memberikan contoh descriptif teks.
b. Guru menyuruh siswa mengecek unsur-unsur kebahasan teks contoh.
c. Guru menguji reading comprehension siswa
d. Guru menyuruh siswa mengerjakan soal membaca dari descriptif teks.
3. Joint Construction of Text:
a. Guru membagi siswa menjadi berkelompok/ berpasangan.
b. Guru menyuruh setiap kelompok untuk membuat tulisan dengan model yang sama dengan teks contoh.
4. Independent Construction of Text: Guru menyajikan hasil kerja siswa secara lisan

## C. Penutup

1. Guru membuat kesimpulan pelajaran.
2. Guru meminta siswa mengakhiri kelas dengan berdo'a
3. Salam

Sumber Belajar : Buku teks yang relevan, gambar terkait tema/ topic, benda benda sekitar, kamus Bahasa Inggris, internet.

Media : Papan tulis, kapur/ spidol, penghapus.

## Penilaian

:

| Indicator pencapaian kompetensi | Teknik penilaian | Bentuk instrument | Instrument soal |
| :---: | :---: | :---: | :---: |
| 1. Mengidentifikasi kalimat atau ide pokok yang terdapat dalam teks <br> 2. Mengidentifikasi language feature dari teks <br> 3. Mengidentifikasi informasi tertentu/ penting yang tedapat dalam teks <br> 4. Mengidentifikasi ciri-ciri dari orang, hewan, benda atau tempat yang dideskripsikan dalam teks | Teks <br> Tulisan | Pilihan ganda | Read the text carefully and then choose the correct answer based on the text by crossing $\mathrm{a}, \mathrm{b}$, c , or d |


| 5. Generic structure |  |  |  |
| :---: | :--- | :--- | :--- |

1. Jumlah skor maksimal keseluruhan adalah 100.
2. Jawaban benar diberi skor 5 dan jawaban salah diberi skor 0. Jumlah skor keseluruhan $5 \times 20=100$.
3. Nilai maksimal $=\frac{\text { Jumlah jawaban yang benar }}{\text { Jumlah soal }}$

$$
\text { Padangsidimpuan, }-\quad-2016
$$

Mengetahui
Validator
Researcher

## Sojuangon Rambe, S.S., M.Pd

NIP. 197908152006041003

## Nilma Sari

NIM. 133400018

## Experimental Class

## Learning Material

A. Simple Present TenseSimple present tense adalah kejadian yang terjadi secara berulang-ulang dan terjadi pada masa sekarang.

- Present Tense (S+ is, am, are + Ving)
- Prepositions (in, for, at, on and etc)- Conjunctions (after, after that, before, then, while, when)- Time Signals (everyday, every week, every morning, on Sunday)
- Adverbs of Frequency (always, usually, often, seldom, sometimes, ever,never, generally)
A. Descriptive Text
Communicative purposes: to describe person, place, mood, situation.
B. Generic Structure of descriptive test
The generic structure of descriptive text, are:

1. Identification: identifies phenomenon to be describe
2. Description: describes parts, qualities, characteristics, etc.
C. Language Features
The Language Feature of descriptive text, are:
3. Focus on specific participants (Tina's rabbit, My favorite place)
4. Use of action verbs 'Material Processes' (it runs fast, it eats grass)
5. Use of descriptive adjectives (white skin, strong legs)
6. Use of Simple Present Tense.

## D. Example of Descriptive Text

## A Beautiful Bag

When I just hang out in a mall one day, I saw a very beautiful bag. I love this bag at the first sight. This was the first time I've spent much money on a bag and I don't regret it. (Identification)

The bag is wonderful. It is made of thin but strong leather. The weight is light and the size keeps it from getting stuffed with junk. It has a long shoulder strap that I like because it keeps the bag hands-free. Its neutral color is fun and sporty. The design is simple and well-made. (Description 1)

The bag is very functional. It is the perfect size to carry a cell phone, a pocket sized wallet, a small book, a pack of gum, and pens. It also fits well into my laptop backpack for bike commuting to school. This bag also has more pockets inside so my small items don't all fall to the bottom. In overall I really satisfy with bag. (Description 2)

## Yogyakarta

Yogyakarta is one of the nicest places I have ever visited. It is a city in south of Java Island. It is a popular holiday resort for people who like cultural and historical sites. (Identification)

Yogyakarta is a small city but there are lots of different things to see. There are many temples in the province, such as Prambanan, Kalasan and Sambi Sari. There are also two places that we must not miss, Hamengkubuwono and Paku Alam palace. (Description 1)

Yogyakarta is a tropical city. There are lots of palm trees and other tropical fruit trees. There are also beautiful beaches, such as Parangtritis, Krakal, Kukup, Glagah. (Description 2)

It is not difficult to get around the city at the day because taxis and buses are easily found. Unfortunately, there is no bus in the evening. The only way to see the nightlife of the city is by taxi, but it is rare at night. I like Yogyakarta because it's a beautiful and peaceful city. I would like to visit it again one day. (Description 3)

## (A Beautiful Bag): Question 1-5

1. What is the topic of the text
2. What is the main idea of the second paragraph?
3. How is the design of the bag?
4. How is the weight of the bag?
5. It is the perfect size to carry a cell phone. The underlined word of the last paragraph refers to?

## (Yogyakarta): Questions 6-10

1. What is the topic of the text?
2. What is the main idea of the second paragraph?
3. Where is the location of Yogyakarta?
4. Does the text describe parts qualities, and characteristics of Yogyakarta?
5. I would like to visit $\underline{i t}$ again one day. The underlined word of the last paragraph refers to?

## Key Answer

## Key Answer (A Beautiful Bag)

1. A beautiful bag
2. The bag is wonderful
3. Simple and well made
4. Light
5. A bag

## Key Answer (Yogyakarta)

1. Yogyakarta is one of the nicest places
2. Yes, it does.
3. Beautiful Beaches
4. There are many temples in the province, such as Prambanan, Kalasan and Sambi Sari.
5. Description.

## Control Class

## Learning Material

## 1. Descriptive text

Descriptive text is used to create a vivid impression of a person, place, object, or event, e. g., to: describe a special place and why it is special, describe the most important person in your life or describe the animal habitat.

## 2. Generic Structure of descriptive text

a. Identification: identifies phenomenon to be describe
b. Description: describes, qualities, characteristics, etc.

## 3. Example of descriptive text

## A Beautiful Bag

When I just hang out in a mall one day, I saw a very beautiful bag. I love this bag at the first sight. This was the first time I've spent much money on a bag and I don't regret it. (Identification)

The bag is wonderful. It is made of thin but strong leather. The weight is light and the size keeps it from getting stuffed with junk. It has a long shoulder strap that I like because it keeps the bag hands-free. Its neutral color is fun and sporty. The design is simple and well-made. (Description 1)

The bag is very functional. It is the perfect size to carry a cell phone, a pocket sized wallet, a small book, a pack of gum, and pens. It also fits well into my laptop backpack for bike commuting to school. This bag also has more pockets inside so my small items don't all fall to the bottom. In overall I really satisfy with bag. (Description 2)

## Yogyakarta

Yogyakarta is one of the nicest places I have ever visited. It is a city in south of Java Island. It is a popular holiday resort for people who like cultural and historical sites. (Identification)

Yogyakarta is a small city but there are lots of different things to see. There are many temples in the province, such as Prambanan, Kalasan and Sambi Sari. There are also two places that we must not miss, Hamengkubuwono and Paku Alam palace. (Description 1)

Yogyakarta is a tropical city. There are lots of palm trees and other tropical fruit trees. There are also beautiful beaches, such as Parangtritis, Krakal, Kukup, Glagah. (Description 2)

It is not difficult to get around the city at the day because taxis and buses are easily found. Unfortunately, there is no bus in the evening. The only way to see the nightlife of the city is by taxi, but it is rare at night. I like Yogyakarta because it's a beautiful and peaceful city. I would like to visit it again one day. (Description 3)

## (A Beautiful Bag): Question 1-5

6. What is the topic of the text?
7. What is the main idea of the second paragraph?
8. How is the design of the bag?
9. How is the weight of the bag?
10. $\underline{I t}$ is the perfect size to carry a cell phone. The underlined word of the last paragraph refers to?

## (Yogyakarta): Questions 6-10

11. What is the topic of the text?
12. What is the main idea of the second paragraph?
13. Where is the location of Yogyakarta?
14. Does the text describe parts qualities, and characteristics of Yogyakarta?
15. I would like to visit $\underline{i t}$ again one day. The underlined word of the last paragraph refers to?

## Key Answer

## Key Answer (A Beautiful Bag)

1. a beautiful bag
2. the bag is wonderful
3. Simple and well made
4. Light
5. a bag

## Key Answer (Yogyakarta)

1. Yogyakarta is one of the nicest places.
2. Yogyakarta is a small city but there are lots of different things to see.
3. In south of Java Island
4. Yes, it does
5. Yogyakarta

# APPENDIX 2 

## Control Class

# RENCANA PELAKSANAAN PEMBELAJARAN <br> (RPP) 

| Nama Sekolah | $:$ SMP Negeri 2 Padangsidimpuan |
| :--- | :--- |
| Mata Pelajaran | $:$ Bahasa Inggris |
| Kelas/Semester | $:$ VIII / I |
| Alokasi Waktu | $: 2 \times 40$ menit |

## Standar Kompetensi: Memahami makna teks tulis fungsional dan esei pendek sederhana berbentuk descriptif yang berkaitan dengan lingkungan sekitar.

## Kompetensi Dasar :

- Membaca nyaring bermakna teks fungsional dan esei berbentuk descriptif pendek dan sederhana dengan ucapan, tekanan, dan intonasi yang berterima yang berkaitan dengan lingkungan sekitar.
- Merespon makna dalam teks tulis fungsional pendek sederhana secara akurat, lancar dan berterima yang berkaitan dengan lingkungan sekitar.

Jenis teks : Teks deskriptif

Aspek/ skill : Membaca

Indikator :

- Membaca dengan nyaring dan bermakna teks fungsional pendek
- Mengidentifikasi fungsi social teks fungsional pendek


## Tujuan pembelajaran:

Pada akhir pebelajaran diharapkan:

- Siswa mampu membaca dengan nyaring dan bermakna teks fungsional pendek
- Siswa mampu mengidentifikasi fungsi sosial teks fungsional pendek

Materi Pembelajaran: Teks fungsional pendek, teks esei berbentuk descriptif

Metode Pembelajaran: Conventional Method

## Langkah-Langkah Kegiatan

## D. Pendahuluan

6. Guru memasuki kelas dengan mengucapkan salam dan menyapa siswa dengan bahasa Inggris
7. Guru meminta siswa untuk membuka kelas dengan berdo'a
8. Guru mengabsen siswa
9. Guru menjelaskan pentingnya materi yang akan dipelajari berikut kompetensi yang harus dikuasai siswa.
10. Guru menjelaskan secara ringkas tentang materi yang akan dipelajari.

## E. Kegiatan Inti

1. Mendengarkan teks yang dibacakan oleh guru/ teman.
2. Membaca nyaring teks fungsional pendek.
3. Menyebutkan tujuan komunikatif teks fungsional pendek.

## F. Penutup

- Guru membuat kesimpulan pelajaran.
- Guru memberikan tugas untuk siswa.
- Guru meminta siswa mengakhiri kelas dengan berdo'a
- Salam

Sumber Belajar: Buku teks yang relevan, gambar terkait tema/ topic, benda benda sekitar, kamus Bahasa Inggris.

Media: Papan tulis, kapur/ spidol, penghapus.

## Penilaian :

| Indicator pencapaian <br> kompetensi | Teknik <br> penilaian | Bentuk instrument | Instrument soal |
| :---: | :---: | :---: | :--- |
| 1.Membaca dengan <br> nyaring <br> bermakna teks <br> fungsional <br> pendek. Teks lisan | Membaca nyaring | Read the text aloud <br> and clearly. |  |
| 2.Mengidentifikasi <br> fungsi social teks <br> fungsional <br> pendek. <br> Teks | Pilihan <br> Ganda | Choose the correct <br> answer. |  |

Pedoman penilaian:
A. (Jawaban benar x 2)
B. Jawaban salah nilai 0
C. Rubrik penilaian:

| Uraian | Skor |
| :--- | :---: |
| Jawaban benar | 2 |
| Jawaban salah | 0 |

Jumlah nilai keseluruhan $=(\mathrm{A}+\mathrm{B}+\mathrm{C}) \mathrm{X} 4$

$$
\text { Padangsidimpuan, - - } 2016
$$

Mengetahui
Validator
Researcher

## Sri Kartini Siregar, S.Pd

Nilma Sari
NIP. 197105072006042009
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## APPENDIX 3

# Instrument for Pre-Test after Validity 

## Name:

Class:

## Instruction: choose the correct answer by crossing (X) a, b, c, or d

Question 1-7: this text below is for question number 1 up 7. Choose the best answer based on text.

Fruits are a source of nourishing substances that keep us alive and healthy. For example, they contain many vitamins, especially vitamins A and C, and many minerals, such as calcium, potassium, and zinc. They also provide fiber for a healthy digestive system and carbohydrates that the body needs to make energy. They don't have a lot of calories to make us fat.

People use fruits for many things. We make juices from them. We cook bread and pie with them. We make jams, jellies and sweets. We freeze them to eat later. We even make alcohol from fruit. Beer comes from grains, wine comes from grapes, and some brandies are made from plums, apricots, or other fruits. But most of the time, we don't do anything special with fruits. We eat them fresh, just as they are!

1. What is the text about?
a. Vitamins.
b. Energy.
c. Fruits.
d. Minerals.
2. What is the main idea of the first paragraph?
a. We make juice from fruits.
b. Fruits are a source of nourishing substances that keep us alive and healthy.
c. Some beer and brandies are made of fruits.
d. We freeze fruits to eat whenever we need later.
3. What is the benefit of fruits from the second paragraph?
a. To make fat
b. To make jams, jellies and sweets.
c. To make red eyes
d. To make yellow teeth
4. What is the characteristic of good fruit?
a. contain many vitamins
b. contain larva
c. contain alcohol
d. contain bad color
5. "We freeze them to eat later." The underlined word refers to?
a. Jams
b. Jellies
c. Sweets
d. Fruits

## Question 8-18: this text below is for question number 8 up 18. Choose the best answer based on text.

Peter is the youngest in our family. He is fourteen years old and four years younger than me.

Peter is the best. He has long straight hair, bright eyes and a friendly smile. Sometimes he is rather naughty at home, but he usually does what he is asked to do. Peter is interested in sports very much, and at school, he plays football and tennis. He is the best badminton player in our family and Peter's favorite sport is badminton.
6. What is the first paragraph about?
a. Peter is the youngest in our family
b. Peter's hobby
c. Peter's family
d. peters' elder brother
7. What is the main idea of the first paragraph?
a. Peter is the youngest child in his family
b. Peter is the oldest in his family
c. Peter is the diligent in his family
d. Peter is the stupid in his family
8. How is Peter in his family?
a. He is the best badminton player in his family
b. He is the best cooker in his family
c. He is the best dancer in his family
d. He is the best singer in his family
9. What the characteristic of peter?
a. He has long straight hair
b. Curly hair
c. Dark eyes
d. Ignorant
10. "He is fourteen years old . . Than $\underline{m e}$." The underlined word refers to?
a. Peter
b. The writer
c. The writer's brother
d. the writer's family

## Question 19-25: this text below is for question number 19 up 25. Choose the best

 answer based on text.Niagara Falls is a famous area of waterfalls. It is one of the most beautiful natural wonders on North America. It is on Niagara River, about halfway between Lake Erie and Lake Ontario. The Niagara River forms part of the border between Canada and the United States. At Niagara Falls, Ontario, Canada is on one side of the river, and the U.S. state of New York is on the other side. Niagara Falls really has two waterfalls. The Horseshoe Falls are in Canada, and the American Falls in the United States.

The Niagara River drops into a steep gorge or canyon, at the falls. Most of the water flows over the Horseshoe Falls. They are not as high as the American Falls, but they are 2,600 feet ( 792 meters) wide-about 0.5 mile ( 0.8 kilometer). The American Falls are about 1,000 feet ( 305 meters) wide. Beyond the falls are Whirlpool Rapids. There, the powerful swirling water has carved a bowl out of the rock.

At night, colored lights shine on the thundering falls. In fact, there is about 10 million people visit there each year. Therefore, we must keep Niagara Falls because it is one of heritages of world.
11. What is the first paragraph about?
a. Niagara falls
b. American
c. Whirlpool
d. Lake Ontario
12. What is main idea of the first paragraph?
a. The Horseshoe Falls are in Canada, and the American Falls are in the United States
b. In fact, there is about 10 million people visit Niagara Falls each year
c. Niagara Falls is a famous area of waterfalls
d. Most of the water flows over the Horseshoe Falls
13. Where is Niagara Falls located?
a. North America
b. Lombok
c. Canada
d. Paris
14. The high of American Falls are about?
a. 1,000 feet ( 305 meters) wide
b. 1,500 feet ( 325 meters) wide
c. 1,250 feet ( 298 meters) wide
d. 1,000 feet ( 325 meters) wide
15. The word famous in line 1 first paragraph can be replaced by $\qquad$
a. Scarce
b. Popular
c. Run
d. Continuously
16. What is the last paragraph about?
a. Persuade to keep Niagara Falls
b. Persuade for visiting Niagara Falls every years
c. Persuade to see colored lights shine on the thundering falls.
d. Persuade for travelling to American
17. What is main idea of the second paragraph?
a. The Niagara River drops into a steep gorge or canyon, at the falls
b. The American Falls are about 1,000 feet ( 305 meters) wide
c. Niagara Falls really has two waterfalls
d. There, the powerful swirling water has carved a bowl out of the rock
18. According to the text, which the text about is NOT true?
a. There is about 10 million people visit Niagara Falls each year
b. Niagara falls is on the Niagara River, about halfway between Lake Erie and Lake Ontario
c. The American Falls are about 1,500 feet ( 350 meters) wide
d. At Niagara Falls, Ontario, Canada is on one side of the river.
19. Where is Niagara Rivers located?
a. Between Lake Erie and Lake Ontario.
b. Between Canada and American
c. Between New York and Canada
d. Between New York and American
20. "In fact, there is about 10 million people visit there each year." The underlined phrase can be replaced by?
a. American
b. Whirlpool
c. Lake Ontario
d. Niagara falls
Padangsidimpuan, - - 2016

Validator

Sojuangon Rambe, S.S., M.Pd
NIP. 197908152006041003

## APPENDIX 4

## Instrument for Post-Test after Validity

## Name:

Class:
Instruction: choose the correct answer by crossing (X) a, b, c, or d
Question 1-13: this text below is for question number 1 up 13. Choose the best answer based on text.

The National monument is a 132 meters tower in the center of Merdeka Square, Central Jakarta. It symbolizes the fight for Indonesia's independence. The monument consists of a 117.7 m obelisk on a 45 m square platform at a height of 17 m.

The towering monument symbolizes the philosophy of Lingga and Yoni. Lingga resembles, rice pestle (alu) and Yoni resembles mortar rice (lesung), two important items in Indonesian agricultural tradition.

The construction began in 1961 under the direction of President Soekarno and the monument was opened to the public in 1975. It is topped by a flame covered with gold foil. The monument and museum is opened daily from 08.00-15.00 everyday throughout the week, except for the last Monday of the month the monument is closed.

1. What is the second paragraph about?
a. The towering monument
b. The museum
c. President Soekarno
d. Merdeka Square
2. What is main idea in the second paragraph?
a. The National Monument is a 132 meters tower in the center of Merdeka Square, Central Jakarta
b. The National Monument is located in Central Java
c. The towering monument symbolizes the philosophy of Lingga and Yoni
d. The monument and museum is opened daily from08.00-15.00 everyday
3. What day the national monument is closed?
a. Saturday
b. Sunday
c. Monday
d. In afternoon
4. How many meters the national monument of square platform?
a. $\quad 117.7 \mathrm{~m}$
b. 117.6 m
c. 117.5 m
d. 117.4 m
5. "The towering monument symbolizes the philosophy of Lingga and Yoni." What is the meaning of Lingga and Yoni?
a. Stick and Bowl
b. Rice pestle (alu) and Mortar rice (lesung)
c. Spoon and Fork
d. Simple and Mod?
6. What is the last paragraph about?
a. The construction of monument
b. The construction of museum
c. The construction of Lingga
d. The construction of Yoni
7. What is main idea in the last paragraph?
a. Lingga resembles, rice pestle (alu) and Yoni resembles mortar rice (lesung), two important items in Indonesian agricultural tradition.
b. The construction began in 1961 under the direction of President Soekarno and the monument was opened to the public in 1975
c. It is topped by flame covered with gold foil
d. The monument consists of a 117.7 m obelisk on a 45 m square platform at a height of 17
8. For the last Monday of the month the monument
a. Was closed
b. Is closed
c. Doesn't closed
d. Were closed
9. What are the important items in Indonesian agricultural tradition?
a. Lingga and Yoni
b. Merdeka Square and Central Jakarta
c. Lingga and Merdeka Square
d. Yoni and Central Jakarta
10. "It is topped by a flame covered with gold foil." The underline word refers to.....
a. Museum
b. Monument
c. Lingga
d. Yoni

## Question 14-25: this text below is for question number 14 up 25. Choose the best answer based on text.

Kuta Beach is a beautiful beach in a southern Bali. Its location is in Bandung Regency, 9 km from Denpasar, the capital of Bali exactly near Bali's Ngurah Rai Airport. Kuta is one of the first towns with substantial tourist development and also remains one of Indonesia's major tourist destinations. Its long sandy beach is known internationally, with its varied accommodation, many restaurants and bars, and many renowned surfers.

It is also well-known as the right place for people to see scenic sunset in the afternoon. People who come to Bali will be very unlucky if they do not see the panoramic sunset in this town. It is real the tourists feel happy to be there. They can sunbathe, swim, surf, play soccer beach, kite flying, play football or just take a walk. For persons who like playing soccer, do not forget to try the game with some locals. The locals usually set up the goal posts between Hard Rock Café and Discovery Shopping Mall at 16.00.

Kuta with its beauty of the beach will make the tourists feel satisfied and hope to visit it back. Believe it or not, though for 50 years ago Kuta is the village of fishermen nowadays it is called as the International City because this town is the place where tourists all over the world meet each other. Therefore, Kuta Beach is one of interesting places in Indonesia.
11. What is the first paragraph about?
a. Kuta Beach
b. Rock café
c. Ngurah Rai
d. Indonesia
12. What is main idea in the first paragraph?
a. Kuta Beach is a beautiful beach in a southern Bali
b. Its long sandy beach is known internationally, with its varied accommodation, may restaurants and bars, and many renowned surfers
c. The locals usually set up the goal posts between Hard Rock Cafe and Discovery Shopping Mall at 16.00
d. Its location is in Bandung Regency, 9 km from Denpasar, the capital of Bali exactly near Bali's Ngurah Rai Airport
13. Where is Kuta Beach located?
a. Surabaya
b. Bandung
c. Denpasar
d. Jakarta
14. How many kilometers the Kuta Beach from Denpasar?
a. 9 km
b. 8 km
c. 7 km
d. 6 km
15. The word $\underline{i t}$ in the second paragraph line 1 refers to........
a. Kuta Beach
b. Sand
c. Sea
d. Fish
16. What is the second paragraph about?
a. Kuta Beach is one of interesting places in Indonesia.
a. Kuta Beach is familiar
b. Kuta Beach is famous
c. Kuta Beach is natural beauty
17. What is main idea in the third paragraph?
a. Kuta with its beauty of the beach will make the tourists feel satisfied and hope to visit it back
b. For persons who like playing soccer, do not forget to try the game with some locals
c. Therefore, Kuta Beach is one of interesting places in Indonesia
d. Its long sandy beach is known internationally, with its varied accommodation, many restaurants and bars, and many renowned surfers.
18. According to the text, which statement is NOT TRUE?
a. Kuta Beach is a beautiful beach in southern Bali
b. Kuta beach is one of interesting place in Indonesia
c. Kuta Beach for 50 years ago is the village of fishermen
d. Kuta Beach is located in south Sumatera
19. When will people see scenic sunset in Bali?
a. In the morning
b. In the afternoon
c. In the evening
d. In the night
20. The word location in paragraph 1 line 1 , the meaning is....
a. Place
b. Home
c. Street
d. Building

Padangsidimpuan, - 2016<br>Validator

Sojuangon Rambe, S.S.,
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NIP. 197908152006041
003


## Appendix 6

Validity of Pre Test

| No | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | $\sum \mathrm{Xt}$ | $\sum \mathbf{X t}{ }^{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 22 | 484 |
| 2 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 20 | 400 |
| 3 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 21 | 441 |
| 4 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 19 | 361 |
| 5 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 7 | 49 |
| 6 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 21 | 441 |
| 7 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 15 | 225 |
| 8 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 12 | 144 |
| 9 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 18 | 324 |
| 10 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 15 | 225 |
| 11 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 10 | 100 |
| 12 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 22 | 484 |
| 13 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 16 | 256 |
| 14 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 19 | 361 |
| 15 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 22 | 484 |
| 16 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 21 | 441 |
| 17 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 17 | 289 |
| 18 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 14 | 196 |
| 19 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 22 | 484 |
| 20 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 17 | 289 |
| 21 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 20 | 400 |
| 22 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 17 | 289 |
| 23 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 19 | 361 |
| 24 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 16 |
| 25 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 21 | 441 |
| 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 25 |
| 27 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 12 | 144 |
| 28 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 21 | 441 |
| 29 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 18 | 324 |
| 30 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 19 | 361 |
| $\mathrm{N}=30$ | 23 | 22 | 24 | 21 | 20 | 13 | 25 | 21 | 23 | 19 | 14 | 21 | 25 | 22 | 18 | 22 | 24 | 22 | 19 | 23 | 14 | 7 | 19 | 23 | 23 | 506 | 9280 |
| p | 0.7 | 0.7 | 0.8 | 0.7 | 0.6 | 0.4 | 0.8 | 0.7 | 0.7 | 0.6 | 0.4 | 0.7 | 0.8 | 0.7 | 0.6 | 0.7 | 0.8 | 0.7 | 0.6 | 0.7 | 0.4 | 0.2 | 0.6 | 0.7 | 0.7 | EXt | $\sum \mathbf{X t ~}^{2}$ |
| q | 0.2 | 0.3 | 0.2 | 0.3 | 0.4 | 0.6 | 0.2 | 0.3 | 0.2 | 0.4 | 0.6 | 0.3 | 0.2 | 0.3 | 0.4 | 0.3 | 0.2 | 0.3 | 0.4 | 0.2 | 0.6 | 0.8 | 0.4 | 0.2 | 0.2 |  |  |

## Appendix 7

Reliability of Pre Test

| No | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | $\Sigma \mathrm{Xt}$ | $\Sigma \mathbf{X t}{ }^{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 22 | 484 |
| 2 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 20 | 400 |
| 3 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 21 | 441 |
| 4 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 19 | 361 |
| 5 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 7 | 49 |
| 6 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 21 | 441 |
| 7 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 15 | 225 |
| 8 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 12 | 144 |
| 9 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 18 | 324 |
| 10 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 15 | 225 |
| 11 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 10 | 100 |
| 12 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 22 | 484 |
| 13 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 16 | 256 |
| 14 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 19 | 361 |
| 15 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 22 | 484 |
| 16 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 21 | 441 |
| 17 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 17 | 289 |
| 18 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 14 | 196 |
| 19 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 22 | 484 |
| 20 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 17 | 289 |
| 21 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 20 | 400 |
| 22 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 17 | 289 |
| 23 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 19 | 361 |
| 24 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 16 |
| 25 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 21 | 441 |
| 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 25 |
| 27 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 12 | 144 |
| 28 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 21 | 441 |
| 29 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 18 | 324 |
| 30 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 19 | 361 |
| N=30 | 23 | 22 | 24 | 21 | 20 | 13 | 25 | 21 | 23 | 19 | 14 | 21 | 25 | 22 | 18 | 22 | 24 | 22 | 19 | 23 | 14 | 7 | 19 | 23 | 23 | 506 | 9280 |
| p | 0.7 | 0.7 | 0.8 | 0.7 | 0.6 | 0.4 | 0.8 | 0.7 | 0.7 | 0.6 | 0.4 | 0.7 | 0.8 | 0.7 | 0.6 | 0.7 | 0.8 | 0.7 | 0.6 | 0.7 | 0.4 | 0.2 | 0.6 | 0.7 | 0.7 | $\Sigma \mathbf{X t}$ | $\Sigma \mathbf{X t}{ }^{2}$ |
| q | 0.2 | 0.3 | 0.2 | 0.3 | 0.4 | 0.6 | 0.2 | 0.3 | 0.2 | 0.4 | 0.6 | 0.3 | 0.2 | 0.3 | 0.4 | 0.3 | 0.2 | 0.3 | 0.4 | 0.2 | 0.6 | 0.8 | 0.4 | 0.2 | 0.2 |  |  |
| pq | $\begin{gathered} 0.1 \\ 4 \end{gathered}$ | 0.21 | 0.16 | 0.21 | 0.24 | $\begin{gathered} 0.2 \\ 4 \end{gathered}$ | 0.16 | $\begin{array}{\|c\|} \hline 0.2 \\ 1 \\ \hline \end{array}$ | $\begin{array}{\|c} \hline 0.1 \\ 4 \end{array}$ | 0.24 | 0.24 | 0.21 | 0.16 | 0.21 | 0.24 | $\begin{gathered} 0.2 \\ \hline 1 \end{gathered}$ | $\begin{array}{\|c\|} \hline 0.1 \\ 6 \end{array}$ | $\begin{gathered} \hline 0.2 \\ 1 \end{gathered}$ | $\begin{array}{\|c\|} \hline 0.2 \\ 4 \end{array}$ | 0.1 4 | 0.24 | 0.16 | 0.2 <br> 4 | 0.1 <br> 4 | 0.1 <br> 4 |  |  |

## Appendix 8

Validity of Post Test

| No | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | EXt | $\sum \mathbf{X t}{ }^{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 22 | 484 |
| 2 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 19 | 361 |
| 3 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 12 | 144 |
| 4 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 20 | 400 |
| 5 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 22 | 484 |
| 6 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 21 | 441 |
| 7 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 19 | 361 |
| 8 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 20 | 400 |
| 9 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 21 | 441 |
| 10 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 22 | 484 |
| 11 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 19 | 361 |
| 12 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 20 | 400 |
| 13 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 17 | 289 |
| 14 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 14 | 196 |
| 15 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 20 | 400 |
| 16 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 14 | 196 |
| 17 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 22 | 484 |
| 18 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 17 | 289 |
| 19 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 14 | 196 |
| 20 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 19 | 361 |
| 21 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 20 | 400 |
| 22 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 13 | 169 |
| 23 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 14 | 196 |
| 24 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 13 | 169 |
| 25 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 15 | 225 |
| 26 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 14 | 196 |
| 27 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | , | 1 | 19 | 361 |
| 28 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 15 | 225 |
| 29 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 12 | 144 |
| 30 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 11 | 121 |
| $\mathrm{N}=30$ | 22 | 22 | 24 | 17 | 21 | 10 | 25 | 26 | 5 | 24 | 25 | 25 | 22 | 22 | 6 | 5 | 23 | 23 | 23 | 24 | 27 | 24 | 24 | 25 | 26 | 520 | 9378 |
| p | 0.7 | 0.7 | 0.8 | 0.5 | 0.7 | 0.3 | 0.8 | 0.8 | 0.1 | 0.8 | 0.8 | 0.8 | 0.7 | 0.7 | 0.2 | 0.1 | 0.7 | 0.7 | 0.7 | 0.8 | 0.9 | 0.8 | 0.8 | 0.8 | 0.8 | $\sum \mathbf{X t}$ | $\sum \mathbf{X t}{ }^{2}$ |
| q | 0.2 | 0.2 | 0.2 | 0.4 | 0.3 | 0.6 | 0.1 | 0.1 | 0.8 | 0.2 | 0.1 | 0.1 | 0.2 | 0.2 | 0.8 | 0.8 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.1 | 0.1 |  |  |

## Appendix 9

## Reliability of Post Test

| No | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | $\Sigma \mathrm{Xt}$ | $\Sigma \mathbf{X t}{ }^{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 22 | 484 |
| 2 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 19 | 361 |
| 3 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 12 | 144 |
| 4 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 20 | 400 |
| 5 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 22 | 484 |
| 6 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 21 | 441 |
| 7 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 19 | 361 |
| 8 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 20 | 400 |
| 9 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 21 | 441 |
| 10 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 22 | 484 |
| 11 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 19 | 361 |
| 12 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 20 | 400 |
| 13 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 17 | 289 |
| 14 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 14 | 196 |
| 15 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 20 | 400 |
| 16 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 14 | 196 |
| 17 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 22 | 484 |
| 18 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 17 | 289 |
| 19 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 14 | 196 |
| 20 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 19 | 361 |
| 21 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 20 | 400 |
| 22 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 13 | 169 |
| 23 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 14 | 196 |
| 24 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 13 | 169 |
| 25 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 15 | 225 |
| 26 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 14 | 196 |
| 27 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 19 | 361 |
| 28 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 15 | 225 |
| 29 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 12 | 144 |
| 30 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 11 | 121 |
| N=30 | 22 | 22 | 24 | 17 | 21 | 10 | 25 | 26 | 5 | 24 | 25 | 25 | 22 | 22 | 6 | 5 | 23 | 23 | 23 | 24 | 27 | 24 | 24 | 25 | 26 | 520 | 9378 |
| p | 0.7 | 0.7 | 0.8 | 0.5 | 0.7 | 0.3 | 0.8 | 0.8 | 0.1 | 0.8 | 0.8 | 0.8 | 0.7 | 0.7 | 0.2 | 0.1 | 0.7 | 0.7 | 0.7 | 0.8 | 0.9 | 0.8 | 0.8 | 0.8 | 0.8 | $\Sigma \mathrm{Xt}$ | $\Sigma \mathbf{X t}{ }^{2}$ |
| q | 0.2 | 0.2 | 0.2 | 0.4 | 0.3 | 0.6 | 0.1 | 0.1 | 0.8 | 0.2 | 0.1 | 0.1 | 0.2 | 0.2 | 0.8 | 0.8 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.1 | 0.1 |  |  |
| pq | 0.14 | 0.14 | 0.16 | 0.20 | 0.21 | 0.18 | 0.8 | 0.8 | 0.8 | 0.16 | 0.8 | 0.8 | 0.14 | 0.14 | 0.16 | 0.8 | 0.14 | 0.14 | 0.14 | 0.14 | 0.9 | 0.16 | 0.16 | 0.8 | 0.8 |  |  |

## Appendix 10

Calculation of $\mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}}-\mathrm{M}_{\mathrm{t}}}{S D_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}}$

## A. Calculation of Pre-test

1. Mean score from score total $\left(\mathrm{M}_{\mathrm{t}}\right)$

$$
\begin{aligned}
& \mathrm{M}_{\mathrm{t}}=\frac{\sum \mathrm{x}_{\mathrm{t}}}{\mathrm{~N}} \\
& \mathrm{M}_{\mathrm{t}}=\frac{506}{30}=16.86
\end{aligned}
$$

2. Standard Deviation $\left(\mathrm{SD}_{\mathrm{t}}\right)$
$\mathrm{SD}_{\mathrm{t}}=\sqrt{\frac{\sum \mathrm{X}^{2}}{\mathrm{~N}}-\left(\frac{\sum \mathrm{X}_{\mathrm{t}}}{\mathrm{N}}\right)^{2}}$
$\mathrm{SD}_{\mathrm{t}}=\sqrt{\frac{9280}{30}-\left(\frac{506}{30}\right)^{2}}$
$\mathrm{SD}_{\mathrm{t}}=\sqrt{309.3-16.86}^{2}$
$\mathrm{SD}_{\mathrm{t}}=\sqrt{309.3-284.2}$
$\mathrm{SD}_{\mathrm{t}}=\sqrt{25.1}=5.00$
3. Mean Score $\left(\mathrm{M}_{\mathrm{p}}\right)$

## Item 1

$\mathrm{M}_{\mathrm{pl}=} \frac{\text { total score of students'score that true item answer }}{\mathrm{n} 1}$
$\mathrm{M}_{\mathrm{pl}}=\frac{22+20+21+19+7+21+12+15+10+22+16+19+22+17+14+22+20+19+21+21+18+19}{23}$
$\mathrm{M}_{\mathrm{pl}}=\frac{418}{23}=18.17$

## Item 2

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students'score that true item answer }}{\mathrm{n} 2}$
$\mathrm{M}_{\mathrm{pl}}=\frac{22+21+19+7+21+15+12+18+15+10+16+19+22+21+14+22+20+19+21+21+18+19}{22}$
$\mathrm{M}_{\mathrm{pl}}=\frac{392}{22}=17.81$

## Item 3

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students' score that true item answer }}{\mathrm{n} 3}$
$\mathrm{M}_{\mathrm{pl}}$
$=$
$22+21+19+21+15+18+10+22+16+19+22+21+17+14+22+17+20+17+20+17+19+21+5+18+19$ 24
$\mathrm{M}_{\mathrm{pl}}=\frac{415}{24}=17.29$

## Item 4

$\mathrm{M}_{\mathrm{pl}=} \frac{\text { total score of students'score that true item answer }}{\mathrm{n} 4}$
$\mathrm{M}_{\mathrm{pl}}=\frac{22+20+21+!9+7+21+22+16+19+22+21+17+14+22+17+20+17+21+12+21+19}{21}$
$\mathrm{M}_{\mathrm{pl}}=\frac{390}{21}=18.57$

## Item 5

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students'score that true item answer }}{\mathrm{n} 5}$
$\mathrm{M}_{\mathrm{pl}}=\frac{22+20+19+12+18+15+22+16+19+22+17+14+22+20+19+21+12+21+18+19}{20}$
$\mathrm{M}_{\mathrm{pl}}=\frac{368}{20}=18.40$

## Item 6

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students'score that true item answer }}{\mathrm{n} 6}$
$\mathrm{M}_{\mathrm{pl}}=\frac{21+21+15+22+16+22+21+17+22+20+17+21+19}{13}$
$\mathrm{M}_{\mathrm{pl}}=\frac{254}{13}=19.53$

## Item 7

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students' score that true item answer }}{\mathrm{n} 7}$
$\mathrm{M}_{\mathrm{pl}}$
$22+20+21+19+15+12+18+10+22+16+22+21+17+14+22+17+20+17+19+4+21+12+21+18+19$ 25
$\mathrm{M}_{\mathrm{pl}}=\frac{448}{25}=17.92$

## Item 8

$\mathrm{M}_{\mathrm{pl}=} \frac{\text { total score of students'score that true item answer }}{\mathrm{n} 8}$
$\mathrm{M}_{\mathrm{pl}}=\frac{22+20+21+19+7+21+12+18+22+16+19+22+21+22+20+17+21+5+21+18+19}{21}$
$\mathrm{M}_{\mathrm{pl}}=\frac{390}{21}=18.57$

## Item 9

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students'score that true item answer }}{\mathrm{n} 9}$
$\mathrm{M}_{\mathrm{pl}}=\frac{22+20+21+21+15+18+15+10+16+19+22+21+17+14+22+17+20+17}{23}$
$\mathrm{M}_{\mathrm{pl}}=\frac{418}{23}=18.17$

## Item 10

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students'score that true item answer }}{\mathrm{n} 10}$
$\mathrm{M}_{\mathrm{pl}}=\frac{22+20+21+7+21+15+18+15+22+16+19+22+17+20+19+21+21+18+19}{19}$
$\mathrm{M}_{\mathrm{pl}}=\frac{389}{19}=20.47$

## Item 11

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students'score that true item answer }}{\mathrm{n} 11}$
$\mathrm{M}_{\mathrm{pl}}=\frac{22+20+15+10+22+19+22+21+22+17+19+21+12+18}{14}$
$\mathrm{M}_{\mathrm{pl}}=\frac{263}{14}=18.78$

## Item 12

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students'score that true item answer }}{\mathrm{n} 12}$
$\mathrm{M}_{\mathrm{pl}}=\frac{22+20+21+19+21+15+18+15+22+16+19+22+17+14+22+17+20+17+19+5+21}{21}$
$\mathrm{M}_{\mathrm{pl}}=\frac{382}{21}=18.19$

## Item 13

$\mathrm{M}_{\mathrm{pl}=} \frac{\text { total score of students'score that true item answer }}{\mathrm{n} 13}$
$\mathrm{M}_{\mathrm{pl}}$
$22+20+21+19+21+15+12+15+10+22+16+19+22+21+17+22+17+20+17+19+21+5+21+18+19$ 25
$\mathrm{M}_{\mathrm{pl}}=\frac{451}{25}=18.04$

Item 14
$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students' score that true item answer }}{\mathrm{n} 14}$
$\mathrm{M}_{\mathrm{pl}}=\frac{22+20+21+19+7+21+15+12+18+15+22+19+22+21+17+14+22+17+19+12+21+19}{22}$
$\mathrm{M}_{\mathrm{pl}}=\frac{395}{22}=17.95$

## Item 15

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students' } \text { score that true item answer }}{\mathrm{n} 15}$
$\mathrm{M}_{\mathrm{pl}=} \frac{22+21+19+21+12+18+15+22+22+21+14+22+20+17+19+21+18+19}{18}$
$\mathrm{M}_{\mathrm{pl}}=\frac{343}{18}=19.05$

## Item 16

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students'score that true item answer }}{\mathrm{n} 16}$
$\mathrm{M}_{\mathrm{pl}=} \frac{22+20+21+19+21+15+18+15+22+19+22+21+17+14+17+20+17+4+21+21+18+19}{22}$
$\mathrm{M}_{\mathrm{pl}}=\frac{403}{22}=18.31$

## Item 17

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students'score that true item answer }}{\mathrm{n} 17}$
$\mathrm{M}_{\mathrm{pl}}$
$\frac{22+20+21+19+7+21+15+18+15+22+19+22+21+17+22+20+17+19+4+21+12+21+18+19}{24}$
$\mathrm{M}_{\mathrm{pl}}=\frac{432}{24}=18.00$

## Item 18

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students' score that true item answer }}{\mathrm{n} 18}$
$\mathrm{M}_{\mathrm{pl}=} \frac{22+20+21+19+21+12+18+22+16+19+22+21+22+17+20+17+19+21+12+21+18+19}{22}$
$\mathrm{M}_{\mathrm{pl}}=\frac{419}{22}=19.045$

## Item 19

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students'score that true item answer }}{\text { n11 }}$
$\mathrm{M}_{\mathrm{pl}}=\frac{22+20+21+19+21+15+18+15+10+22+16+21+14+22+17+20+17+12+18}{19}$
$\mathrm{M}_{\mathrm{pl}}=\frac{357}{19}=18.78$

## Item 20

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students' } \text { score that true item answer }}{\mathrm{n} 20}$
$\mathrm{M}_{\mathrm{pl}}$
$22+20+21+19+21+15+12+18+16+22+21+17+14+22+17+20+17+19+21+12+21+18+19$
23
$\mathrm{M}_{\mathrm{pl}}=\frac{424}{23}=18.43$

## Item 21

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students' score that true item answer }}{\mathrm{n} 21}$
$\mathrm{M}_{\mathrm{pl}}=\frac{20+21+7+22+19+21+17+22+17+19+4+21+5+12}{14}$
$\mathrm{M}_{\mathrm{pl}}=\frac{270}{14}=19.28$

## Item 22

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students' score that true item answer }}{\mathrm{n} 22}$
$\mathrm{M}_{\mathrm{pl}}=\frac{22+21+17+17+19+21+18}{7}$
$M_{p l}=\frac{135}{7}=19.28$

## Item 23

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students'score that true item answer }}{\mathrm{n} 23}$
$\mathrm{M}_{\mathrm{pl}}=\frac{22+20+19+21+15+18+15+10+22+19+22+17+22+17+19+21+21+18+19}{19}$
$\mathrm{M}_{\mathrm{pl}}=\frac{357}{19}=18.78$

## Item 24

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students' score that true item answer }}{\mathrm{n} 24}$
$\mathrm{M}_{\mathrm{pl}}$
$22+20+21+19+21+15+12+18+10+22+19+22+21+17+22+17+20+17+19+21+21+18+19$
$\mathrm{M}_{\mathrm{pl}}=\frac{433}{23}=18.82$

Item 25
$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students'score that true item answer }}{\mathrm{n} 25}$
$\mathrm{M}_{\mathrm{pl}}$
$22+20+21+19+21+12+18+22+16+19+22+21+17+14+22+17+20+17+19+21+12+21+18$
23
$\mathrm{M}_{\mathrm{pl}}=\frac{431}{23}=18.73$
4. Calculation of the formulation $r_{p b i}=\frac{M_{p-M_{t}}}{S D_{t}} \sqrt{\frac{p}{q}}$

## Item 1

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}} \mathrm{SD} \sqrt{\mathrm{p}}}{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{18.17-16.86}{5.00} \sqrt{\frac{0.7}{0.2}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{1.31}{5.00} \sqrt{3.5} \\
& \mathrm{r}_{\mathrm{pbi}}=0.262 \times 1.8=0.471
\end{aligned}
$$

## Item 2

$$
\begin{aligned}
& r_{\mathrm{pbi}}=\frac{M_{p-M_{t}}}{S D_{t}} \sqrt{\frac{p}{q}} \\
& r_{\mathrm{pbi}}=\frac{17.81-16.86}{5.00} \sqrt{\frac{0.7}{0.3}} \\
& r_{\mathrm{pbi}}=\frac{0.95}{5.00} \sqrt{2.33} \\
& r_{\mathrm{pbi}}=0.19 \times 1.5=0.288
\end{aligned}
$$

## Item 3

$r_{p b i}=\frac{M_{p-M_{t}}}{S D_{t}} \sqrt{\frac{p}{q}}$
$\mathrm{r}_{\mathrm{pbi}}=\frac{17.29-16.86}{5.00} \sqrt{\frac{0.8}{0.2}}$
$r_{p b i}=\frac{0.43}{5.00} \sqrt{4}$
$\mathrm{r}_{\mathrm{pbi}}=0.086 \times 2=0.172$

## Item 4

$r_{p b i}=\frac{M_{p-M_{t}}}{S D_{t}} \sqrt{\frac{p}{q}}$

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{18.57-16.86}{5.00} \sqrt{\frac{0.7}{0.3}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{1.71}{5.00} \sqrt{2.33} \\
& \mathrm{r}_{\mathrm{pbi}}=0.342 \times 1.52=0.519
\end{aligned}
$$

## Item 5

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{S D_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{18.40-16.86}{5.00} \sqrt{\frac{0.6}{0.4}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{1.54}{5.00} \sqrt{1.5} \\
& \mathrm{r}_{\mathrm{pbi}}=0.308 \times 1.22=0.375
\end{aligned}
$$

## Item 6

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{m}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{\mathrm{SD}_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{19.53-16.86}{5.00} \sqrt{\frac{0.4}{0.6}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{2.67}{5.00} \sqrt{0.66} \\
& \mathrm{r}_{\mathrm{pbi}}=0.534 \times 0.812=0.433
\end{aligned}
$$

## Item 7

$$
\begin{aligned}
& r_{p b i}=\frac{M_{p-M_{t}}}{S D_{t}} \sqrt{\frac{p}{q}} \\
& r_{\mathrm{pbi}}=\frac{17.92-16.86}{5.00} \sqrt{\frac{0.8}{0.2}} \\
& r_{\mathrm{pbi}}=\frac{1.06}{5.00} \sqrt{4} \\
& r_{\mathrm{pbi}}=0.212 \times 2=0.424
\end{aligned}
$$

## Item 8

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{\mathrm{SD}_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{18.57-16.86}{5.00} \sqrt{\frac{0.7}{0.3}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{1.71}{5.00} \sqrt{2.33}
\end{aligned}
$$

$$
\mathrm{r}_{\mathrm{pbi}}=0.342 \times 1.52=0.519
$$

## Item 9

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{S D_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{18.17-16.86}{5.00} \sqrt{\frac{0.7}{0.3}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{1.31}{5.00} \sqrt{2.33} \\
& \mathrm{r}_{\mathrm{pbi}}=0.262 \times 1.52=0.398
\end{aligned}
$$

## Item 10

$r_{p b i}=\frac{M_{p-M_{t}}}{S D_{t}} \sqrt{\frac{p}{q}}$
$r_{\mathrm{pbi}}=\frac{20.47-16.86}{5.00} \sqrt{\frac{0.6}{0.4}}$
$\mathrm{r}_{\mathrm{pbi}}=\frac{3.61}{5.00} \sqrt{1.5}$
$\mathrm{r}_{\mathrm{pbi}}=0.722 \times 1.22=0.880$

## Item 11

$r_{p b i}=\frac{M_{p-M_{t}}}{S D_{t}} \sqrt{\frac{p}{q}}$
$r_{p b i}=\frac{18.78-16.86}{5.00} \sqrt{\frac{0.4}{0.6}}$
$\mathrm{r}_{\mathrm{pbi}}=\frac{1.92}{5.00} \sqrt{0.66}$
$\mathrm{r}_{\mathrm{pbi}}=0.384 \times 0.81=0.311$

## Item 12

$$
\begin{aligned}
& r_{p b i}=\frac{M_{p-M_{t}}}{S D_{t}} \sqrt{\frac{p}{q}} \\
& r_{\mathrm{pbi}}=\frac{18.19-16.86}{5.00} \sqrt{\frac{0.8}{0.2}} \\
& r_{\mathrm{pbi}}=\frac{1.33}{5.00} \sqrt{4} \\
& r_{\mathrm{pbi}}=0.266 \times 2=0.532
\end{aligned}
$$

Item 13

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{\mathrm{SD}_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{18.04-16.86}{5.00} \sqrt{\frac{0.8}{0.2}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{1.18}{5.00} \sqrt{4} \\
& \mathrm{r}_{\mathrm{pbi}}=0.236 \times 2=0.472
\end{aligned}
$$

## Item 14

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{S D_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{17.95-16.86}{5.00} \sqrt{\frac{0.7}{0.3}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{1.09}{5.00} \sqrt{2.33} \\
& \mathrm{r}_{\mathrm{pbi}}=0.218 \times 1.52=0.331
\end{aligned}
$$

## Item 15

$$
\begin{aligned}
& r_{p b i}=\frac{M_{p-M_{t}}}{S D_{t}} \sqrt{\frac{p}{q}} \\
& r_{p b i}=\frac{19.05-16.86}{5.00} \sqrt{\frac{0.6}{0.4}} \\
& r_{p b i}=\frac{2.19}{5.00} \sqrt{1.5} \\
& r_{p b i}=0.438 \times 1.22=0.534
\end{aligned}
$$

## Item 16

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{\mathrm{SD}_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{18.31-16.86}{5.00} \sqrt{\frac{0.7}{0.3}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{1.45}{5.00} \sqrt{2.33} \\
& \mathrm{r}_{\mathrm{pbi}}=0.29 \times 1.52=0.440
\end{aligned}
$$

## Item 17

$$
\begin{aligned}
& r_{p b i}=\frac{M_{p-M_{t}}}{S D_{t}} \sqrt{\frac{p}{q}} \\
& r_{p b i}=\frac{18.00-16.86}{5.00} \sqrt{\frac{0.8}{0.2}}
\end{aligned}
$$

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{1.14}{5.00} \sqrt{4} \\
& \mathrm{r}_{\mathrm{pbi}}=0.228 \times 2=0.456
\end{aligned}
$$

## Item 18

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{\mathrm{SD}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{19.04-16.86}{5.00} \sqrt{\frac{0.7}{0.3}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{2.18}{5.00} 2.33 \\
& \mathrm{r}_{\mathrm{pbi}}=0.436 \times 1.52=0.662
\end{aligned}
$$

## Item 19

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{\mathrm{SD} \mathrm{D}_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{18.78-16.86}{5.00} \sqrt{\frac{0.6}{0.4}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{1.92}{5.00} \sqrt{1.5} \\
& \mathrm{r}_{\mathrm{pbi}}=0.384 \times 1.22=0.468
\end{aligned}
$$

## Item 20

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{m}_{\mathrm{t}}}}{\mathrm{SD}_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{18.43-16.86}{5.00} \sqrt{\frac{0.7}{0.2}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{1.57}{5.00} \sqrt{3.5} \\
& \mathrm{r}_{\mathrm{pbi}}=0.314 \times 1.87=0.587
\end{aligned}
$$

## Item 21

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{\mathrm{SD}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{19.28-16.86}{5.00} \sqrt{\frac{0.4}{0.6}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{2.42}{5.00} \sqrt{0.66} \\
& \mathrm{r}_{\mathrm{pbi}}=0.484 \times 0.812=0.393
\end{aligned}
$$

## Item 22

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{S D_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{19.28-16.86}{5.00} \sqrt{\frac{0.2}{0.8}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{2.42}{5.00} \sqrt{0.25} \\
& \mathrm{r}_{\mathrm{pbi}}=0.484 \times 0.5=0.242
\end{aligned}
$$

## Item 23

$r_{p b i}=\frac{M_{p-M_{t}}}{S D_{t}} \sqrt{\frac{p}{q}}$
$r_{p b i}=\frac{1.92-16.86}{5.00} \sqrt{\frac{0.6}{0.4}}$
$\mathrm{r}_{\mathrm{pbi}}=\frac{1.92}{5.00} \sqrt{1.5}$
$\mathrm{r}_{\mathrm{pbi}}=0.384 \times 1.22=0.468$

## Item 24

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{\mathrm{SD}_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{18.82-16.86}{5.00} \sqrt{\frac{0.7}{0.2}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{1.96}{5.00} \sqrt{3.5} \\
& \mathrm{r}_{\mathrm{pbi}}=0.392 \times 1.87=0.7333
\end{aligned}
$$

## Item 25

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{\mathrm{SD}_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{18.73-16.86}{5.00} \sqrt{\frac{0.7}{0.2}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{1.87}{5.00} \sqrt{3.5} \\
& \mathrm{r}_{\mathrm{pbi}}=0.374 \times 1.87=0.699
\end{aligned}
$$

## B. Calculation of Post-test

5. Mean score from score total $\left(\mathrm{M}_{\mathrm{t}}\right)$

$$
\begin{aligned}
& \mathrm{M}_{\mathrm{t}}=\frac{\sum \mathrm{x}_{\mathrm{t}}}{\mathrm{~N}} \\
& \mathrm{M}_{\mathrm{t}}=\frac{520}{30}=17.33
\end{aligned}
$$

6. Standard Deviation $\left(\mathrm{SD}_{\mathrm{t}}\right)$
$\mathrm{SD}_{\mathrm{t}}=\sqrt{\frac{\sum \mathrm{X}_{\mathrm{t}^{2}}}{\mathrm{~N}}-\left(\frac{\sum \mathrm{X}_{\mathrm{t}}}{\mathrm{N}}\right)^{2}}$
$\mathrm{SD}_{\mathrm{t}}=\sqrt{\frac{9378}{30}-\left(\frac{520}{30}\right)^{2}}$
$\mathrm{SD}_{\mathrm{t}}=\sqrt{312.6-17.33}{ }^{2}$
$\mathrm{SD}_{\mathrm{t}}=\sqrt{312.6-300.32}$
$\mathrm{SD}_{\mathrm{t}}=\sqrt{12.28}=3.50$
7. Mean Score $\left(\mathrm{M}_{\mathrm{p}}\right)$

## Item 1

$\mathrm{M}_{\mathrm{pl} 1} \frac{\text { total score of students'score that true item answer }}{\mathrm{n} 1}$
$\mathrm{M}_{\mathrm{pl}}=\frac{22+19+12+22+21+20+21+22+20+17+14+14+22+17+19+20+13+14+15+14+15+12}{22}$
$\mathrm{M}_{\mathrm{pl}}=\frac{385}{23}=17.5$

## Item 2

$\mathrm{M}_{\mathrm{pl}=} \frac{\text { total score of students'score that true item answer }}{\mathrm{n} 2}$
$\mathrm{M}_{\mathrm{pl}}=\frac{22+19+12+20+22+21+19+20+21+22+19+20+17+20+14+17+19+20+14+13+19+12}{22}$
$\mathrm{M}_{\mathrm{pl}}=\frac{402}{22}=18.27$

## Item 3

$\mathrm{M}_{\mathrm{pl}=} \frac{\text { total score of students'score that true item answer }}{\mathrm{n} 3}$
$\mathrm{M}_{\mathrm{pl}}$
$=$
$22+19+12+20+22+21+20+21+22+19+20+17+14+20+14+22+19+20+13+13+15+19+15+12$ 24
$\mathrm{M}_{\mathrm{pl}}=\frac{431}{24}=17.95$

## Item 4

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students' score that true item answer }}{\mathrm{n} 4}$
$\mathrm{M}_{\mathrm{pl}}=\frac{22+19+12+20+22+21+19+20+21+19+20+17+14+20+22+20}{17}$
$M_{p l}=\frac{330}{17}=19.41$

## Item 5

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students'score that true item answer }}{\mathrm{n} 5}$
$\mathrm{M}_{\mathrm{pl}}=\frac{22+19+20+22+21+19+20+21+22+19+20+17+20+14+22+17+19+20+13+14+11}{21}$
$\mathrm{M}_{\mathrm{pl}}=\frac{392}{21}=18.66$

## Item 6

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students'score that true item answer }}{\mathrm{n} 6}$
$\mathrm{M}_{\mathrm{pl}}=\frac{22+22+14+19+13+13+19+15+12+11}{10}$
$M_{p l}=\frac{160}{10}=16$

## Item 7

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students' score that true item answer }}{\mathrm{n} 7}$
$\mathrm{M}_{\mathrm{pl}}$
$22+19+12+22+21+19+20+21+22+19+20+17+14+20+14+22+17+14+19+20+14+15+19+15+11$ 25
$\mathrm{M}_{\mathrm{pl}}=\frac{448}{25}=17.92$

## Item 8

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students' score that true item answer }}{\mathrm{n} 8}$
$\mathrm{M}_{\mathrm{pl}}=$
$22+19+20+22+21+19+20+21+22+19+20+17+14+20+14+22+17+19+20+13+14+15+14+19+15+12$
$\mathrm{M}_{\mathrm{pl}}=\frac{470}{26}=18.07$

## Item 9

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students'score that true item answer }}{\mathrm{n} 9}$
$\mathrm{M}_{\mathrm{pl}}=\frac{22+14+13+11+12}{5}$
$\mathrm{M}_{\mathrm{pl}}=\frac{72}{5}=14.4$

## Item 10

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students'score that true item answer }}{\mathrm{n} 10}$
$\mathrm{M}_{\mathrm{pl}}$
$\underline{22+19+12+20+22+21+19+20+21+22+19+20+17+20+14+22+19+20+13+14+15+14+19+15}$
24
$\mathrm{M}_{\mathrm{pl}}=\frac{439}{24}=18.29$

## Item 11

$\mathrm{M}_{\mathrm{pl}=} \frac{\text { total score of students'score that true item answer }}{\mathrm{n} 11}$
$\mathrm{M}_{\mathrm{pl}}$
$\frac{22+19+12+20+22+21+19+20+21+22+19+20+17+14+20+22+14+19+20+13+14+13+15+14+19}{25}$
$\mathrm{M}_{\mathrm{pl}}=\frac{451}{25}=18.04$

## Item 12

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students'score that true item answer }}{\mathrm{n} 12}$
$\mathrm{M}_{\mathrm{pl}}$
$\underline{22+19+20+22+21+19+20+21+22+19+20+17+20+14+22+17+14+19+20+14+15+14+19+15+12}$ 25
$\mathrm{M}_{\mathrm{pl}}=\frac{457}{25}=18.28$

## Item 13

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students's score that true item answer }}{\mathrm{n} 13}$
$\mathrm{M}_{\mathrm{pl}}=\frac{22+19+20+22+21+19+20+21+22+19+20+17+14+20+22+19+14+15+14+19+15+12}{22}$
$\mathrm{M}_{\mathrm{pl}}=\frac{406}{22}=18.45$

## Item 14

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students' score that true item answer }}{\mathrm{n} 14}$
$\mathrm{M}_{\mathrm{pl}}=\frac{22+19+21+19+20+21+22+19+20+17+14+20+14+22+17+14+19+20+14+19+15+11}{22}$
$\mathrm{M}_{\mathrm{pl}}=\frac{399}{22}=18.13$

## Item 15

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students' score that true item answer }}{\mathrm{n} 15}$
$\mathrm{M}_{\mathrm{pl}}=\frac{22+20+22+21+19+22}{6}$
$M_{p l}=\frac{126}{6}=21$

## Item 16

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students' score that true item answer }}{\mathrm{n} 16}$
$\mathrm{M}_{\mathrm{pl}=} \frac{19+20+17+14+11}{5}$
$\mathrm{M}_{\mathrm{pl}}=\frac{81}{5}=16.2$

## Item 17

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students'score that true item answer }}{\mathrm{n} 17}$
$\mathrm{M}_{\mathrm{pl}}$
$\underline{22+12+20+22+21+19+20+21+22+19+20+17+14+20+14+22+17+20+14+15+14+19+15}$ 23
$\mathrm{M}_{\mathrm{pl}}=\frac{419}{23}=18.21$

## Item 18

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students' score that true item answer }}{\mathrm{n} 18}$
$\mathrm{M}_{\mathrm{pl}}$
$22+19+12+20+22+21+19+20+21+22+20+17+14+20+22+17+19+20+13+13+19+15+11$
23
$\mathrm{M}_{\mathrm{pl}}=\frac{418}{23}=18.17$

Item 19
$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students' score that true item answer }}{\mathrm{n} 11}$
$M_{p l}$
$22+12+20+22+21+19+20+21+22+19+20+14+20+22+17+14+20+14+13+15+14+19+12$
23
$\mathrm{M}_{\mathrm{pl}}=\frac{427}{23}=18.56$

Item 20
$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students'score that true item answer }}{\mathrm{n} 20}$
$\mathrm{M}_{\mathrm{pl}}$
$\underline{22+19+12+20+22+21+19+20+21+22+19+20+20+14+22+17+14+19+20+13+13+14+19+11}$ 24
$\mathrm{M}_{\mathrm{pl}}=\frac{433}{24}=18.04$

## Item 21

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students'score that true item answer }}{\mathrm{n} 21}$
$\mathrm{M}_{\mathrm{pl}}=$
$22+19+20+22+21+19+20+21+22+19+20+17+14+20+14+22+17+14+19+20+13+14+13+15+19+15+12$
27
$\mathrm{M}_{\mathrm{pl}}=\frac{483}{27}=17.88$

## Item 22

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students'score that true item answer }}{\mathrm{n} 22}$
$M_{p l}$
$\underline{22+19+20+22+21+19+21+22+19+20+20+22+17+14+19+20+13+14+13+15+14+19+12+11}$
$\mathrm{M}_{\mathrm{pl}}=\frac{439}{24}=18.29$

Item 23
$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students'score that true item answer }}{\mathrm{n} 23}$
$M_{p l}$ $=$
$\underline{22+19+20+22+21+19+20+21+22+19+20+17+14+20+22+17+14+19+20+14+13+15+19+15}$ 24
$\mathrm{M}_{\mathrm{pl}}=\frac{444}{24}=18.8$

## Item 24

$\mathrm{M}_{\mathrm{pl}}=\frac{\text { total score of students'score that true item answer }}{\mathrm{n} 24}$
$\mathrm{M}_{\mathrm{pl}=}$
$22+19+12+20+22+19+20+21+22+19+20+20+20+14+22+17+14+19+20+14+13+15+14+19+12+11$ 25
$\mathrm{M}_{\mathrm{pl}}=\frac{451}{25}=18.04$

## Item 25

$\mathrm{M}_{\mathrm{pl}=} \frac{\text { total score of students'score that true item answer }}{\mathrm{n} 25}$
$\mathrm{M}_{\mathrm{pl}}=$
$22+20+22+21+20+21+22+19+17+14+20+14+22+17+14+19+20+13+14+13+15+14+19+15+12+11$
26
$\mathrm{M}_{\mathrm{pl}}=\frac{470}{26}=18.07$
8. Calculation of the formulation $r_{p b i}=\frac{M_{p-M_{t}}}{S D_{t}} \sqrt{\frac{p}{q}}$

## Item 1

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}}-\mathrm{M}_{\mathrm{t}}}{\mathrm{SD}_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{17.5-17.33}{3.50} \sqrt{\frac{0.7}{0.2}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{0.17}{3.50} \sqrt{3.5} \\
& \mathrm{r}_{\mathrm{pbi}}=0.048 \times 1.87=0.089
\end{aligned}
$$

## Item 2

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{S D_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{18.27-17.33}{3.50} \sqrt{\frac{0.7}{0.2}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{0.94}{3.50} \sqrt{3.5} \\
& \mathrm{r}_{\mathrm{pbi}}=0.268 \times 1.87=0.501
\end{aligned}
$$

## Item 3

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{\mathrm{SD}_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{17.95-17.33}{3.50} \sqrt{\frac{0.8}{0.2}}
\end{aligned}
$$

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{0.62}{3.50} \sqrt{4} \\
& \mathrm{r}_{\mathrm{pbi}}=0.177 \times 2=0.354
\end{aligned}
$$

## Item 4

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}} \mathrm{SD}_{\mathrm{t}}}{} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{19.41-17.33}{3.50} \sqrt{\frac{0.5}{0.4}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{2.08}{3.50} \sqrt{1.25} \\
& \mathrm{r}_{\mathrm{pbi}}=0.59 \times 1.11=0.654
\end{aligned}
$$

## Item 5

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}^{S D_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}}}{} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{18.66-17.33}{3.50} \sqrt{\frac{0.7}{0.3}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{1.33}{3.50} \sqrt{2.3} \\
& \mathrm{r}_{\mathrm{pbi}}=0.38 \times 1.51=0.573
\end{aligned}
$$

## Item 6

$r_{p b i}=\frac{M_{p-M_{t}}}{S D_{t}} \sqrt{\frac{p}{q}}$
$r_{p b i}=\frac{16-17.33}{3.50} \sqrt{\frac{0.3}{0.6}}$
$\mathrm{r}_{\mathrm{pbi}}=\frac{-1.33}{3.50} \sqrt{0.5}$
$\mathrm{r}_{\mathrm{pbi}}=-0.38 \times 0.70=-0.266$

## Item 7

$r_{p b i}=\frac{M_{p-M_{t}}}{S D_{t}} \sqrt{\frac{p}{q}}$
$\mathrm{r}_{\mathrm{pbi}}=\frac{17.92-17.33}{3.50} \sqrt{\frac{0.8}{0.1}}$
$\mathrm{r}_{\mathrm{pbi}}=\frac{0.59}{3.50} \sqrt{8}$
$\mathrm{r}_{\mathrm{pbi}}=0.168 \times 2.8=0.470$

## Item 8

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{S D_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{18.07-17.33}{3.50} \sqrt{\frac{0.8}{0.1}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{0.74}{3.50} \sqrt{8} \\
& \mathrm{r}_{\mathrm{pbi}}=0.211 \times 2.8=0.590
\end{aligned}
$$

## Item 9

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{S D_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{14.4-17.33}{3.50} \sqrt{\frac{0.1}{0.8}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{2.93}{3.50} \sqrt{0.125} \\
& \mathrm{r}_{\mathrm{pbi}}=-0.83 \times 0.35=-0.290
\end{aligned}
$$

## Item 10

$r_{p b i}=\frac{M_{p-M_{t}}}{S D_{t}} \sqrt{\frac{p}{q}}$
$\mathrm{r}_{\mathrm{pbi}}=\frac{18.29-17.33}{3.50} \sqrt{\frac{0.8}{0.2}}$
$\mathrm{r}_{\mathrm{pbi}}=\frac{0.96}{3.50} \sqrt{4}$
$\mathrm{r}_{\mathrm{pbi}}=0.274 \times 2=0.548$

## Item 11

$r_{p b i}=\frac{M_{p-M_{t}}}{S D_{t}} \sqrt{\frac{p}{q}}$
$\mathrm{r}_{\mathrm{pbi}}=\frac{18.04-17.33}{3.50} \sqrt{\frac{0.8}{0.1}}$
$\mathrm{r}_{\mathrm{pbi}}=\frac{0.71}{3.50} \sqrt{8}$
$r_{p b i}=0.202 \times 2.8=0.565$

## Item 12

$r_{p b i}=\frac{M_{p-M_{t}}}{S D_{t}} \sqrt{\frac{p}{q}}$

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{18.28-17.33}{3.50} \sqrt{\frac{0.8}{0.1}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{0.95}{3.50} \sqrt{8} \\
& \mathrm{r}_{\mathrm{pbi}}=0.271 \times 2.8=0.758
\end{aligned}
$$

## Item 13

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{\mathrm{SD}_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{18.45-17.33}{3.50} \sqrt{\frac{0.7}{0.2}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{1.12}{3.50} \sqrt{3.5} \\
& \mathrm{r}_{\mathrm{pbi}}=0.32 \times 1.87=0.598
\end{aligned}
$$

## Item 14

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{\mathrm{SD}_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{18.13-17.33}{3.50} \sqrt{\frac{0.7}{0.2}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{0.8}{3.50} \sqrt{3.5} \\
& \mathrm{r}_{\mathrm{pbi}}=0.228 \times 1.87=0.426
\end{aligned}
$$

## Item 15

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{S D_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{21-17.33}{3.50} \sqrt{\frac{0.2}{0.8}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{3.67}{3.50} \sqrt{0.25}
\end{aligned}
$$

$$
\mathrm{r}_{\mathrm{pbi}}=1.048 \times 0.5=0.524
$$

## Item 16

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{\mathrm{SD}_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{16.2-17.33}{3.50} \sqrt{\frac{0.1}{0.8}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{-1.13}{3.50} \sqrt{0.125}
\end{aligned}
$$

$$
\mathrm{r}_{\mathrm{pbi}}=-3.22 \times 0.35=-1.127
$$

## Item 17

$$
\begin{aligned}
& r_{p b i}=\frac{M_{p-M_{t}}}{S D_{t}} \sqrt{\frac{p}{q}} \\
& r_{\mathrm{pbi}}=\frac{18.21-17.33}{3.50} \sqrt{\frac{0.7}{0.2}} \\
& r_{\mathrm{pbi}}=\frac{1.050}{3.50} \sqrt{3.5} \\
& r_{\mathrm{pbi}}=0.3 \times 1.87=0.561
\end{aligned}
$$

## Item 18

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}} \mathrm{SD}_{\mathrm{t}}}{} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{18.17-17.33}{3.50} \sqrt{\frac{0.7}{0.2}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{0.84}{3.50} \sqrt{3.5} \\
& \mathrm{r}_{\mathrm{pbi}}=0.24 \times 1.87=0.448
\end{aligned}
$$

## Item 19

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{S \mathrm{D}_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{18.56-17.33}{3.50} \sqrt{\frac{0.7}{0.2}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{1.23}{3.50} \sqrt{3.5} \\
& \mathrm{r}_{\mathrm{pbi}}=0.351 \times 1.87=0.656
\end{aligned}
$$

## Item 20

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{m}_{\mathrm{p}-\mathrm{m}_{\mathrm{t}}} \mathrm{SD}_{\mathrm{t}}}{\sqrt{\frac{\mathrm{p}}{\mathrm{q}}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{18.04-17.33}{3.50} \sqrt{\frac{0.8}{0.2}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{0.71}{3.50} \sqrt{4} \\
& \mathrm{r}_{\mathrm{pbi}}=0.202 \times 2=0.404
\end{aligned}
$$

## Item 21

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{\mathrm{SD}_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{17.88-17.33}{3.50} \sqrt{\frac{0.9}{0.1}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{0.55}{3.50} \sqrt{9} \\
& \mathrm{r}_{\mathrm{pbi}}=0.157 \times 3=0.471
\end{aligned}
$$

## Item 22

$\mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{\mathrm{SD}_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}}$
$\mathrm{r}_{\mathrm{pbi}}=\frac{18.29-17.33}{3.50} \sqrt{\frac{0.8}{0.2}}$
$\mathrm{r}_{\mathrm{pbi}}=\frac{0.96}{3.50} \sqrt{4}$
$\mathrm{r}_{\mathrm{pbi}}=0.274 \times 2=0.548$

## Item 23

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{\mathrm{M}_{\mathrm{p}-\mathrm{M}_{\mathrm{t}}}}{S D_{\mathrm{t}}} \sqrt{\frac{\mathrm{p}}{\mathrm{q}}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{18.8-17.33}{3.50} \sqrt{\frac{0.8}{0.2}} \\
& \mathrm{r}_{\mathrm{pbi}}=\frac{1.17}{3.50} \sqrt{4} \\
& \mathrm{r}_{\mathrm{pbi}}=0.334 \times 2=0.668
\end{aligned}
$$

## Item 24

$r_{p b i}=\frac{M_{p-M_{t}}}{S D_{t}} \sqrt{\frac{p}{q}}$
$\mathrm{r}_{\mathrm{pbi}}=\frac{18.04-17.33}{3.50} \sqrt{\frac{0.8}{0.1}}$
$\mathrm{r}_{\mathrm{pbi}}=\frac{0.71}{3.50} \sqrt{8}$
$r_{p b i}=0.202 \times 2.8=0.565$

## Item 25

$r_{p b i}=\frac{M_{p-M_{t}}}{S D_{t}} \sqrt{\frac{p}{q}}$
$\mathrm{r}_{\mathrm{pbi}}=\frac{18.07-17.33}{3.50} \sqrt{\frac{0.8}{0.1}}$

$$
\begin{aligned}
& \mathrm{r}_{\mathrm{pbi}}=\frac{0.74}{3.50} \sqrt{8} \\
& \mathrm{r}_{\mathrm{pbi}}=0.211 \times 2.8=0.590
\end{aligned}
$$

## Appendix 11

Table Validity of Pre Test

| No | Mp | Mt | SDt | $\mathbf{p}$ | $\mathbf{q}$ | $\boldsymbol{r}_{\text {phi }}=\frac{\boldsymbol{M}_{\boldsymbol{p}}-\boldsymbol{M}_{\boldsymbol{t}}}{\boldsymbol{S D}_{\boldsymbol{t}}} \sqrt{\frac{\boldsymbol{p}}{\boldsymbol{q}}}$ | Rt on 5\% <br> significant | Interpretation |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 18.17 | 16.86 | 5.00 | 0.7 | 0.2 | 0.471 | 0.361 | Valid |
| 2 | 17.81 | 16.86 | 5.00 | 0.7 | 0.3 | 0.288 | 0.361 | Invalid |
| 3 | 17.29 | 16.86 | 5.00 | 0.8 | 0.2 | 0.172 | 0.361 | Invalid |
| 4 | 18.57 | 16.86 | 5.00 | 0.7 | 0.3 | 0.519 | 0.361 | Valid |
| 5 | 18.40 | 16.86 | 5.00 | 0.6 | 0.4 | 0.375 | 0.361 | Valid |
| 6 | 19.53 | 16.86 | 5.00 | 0.4 | 0.6 | 0.433 | 0.361 | Valid |
| 7 | 17.92 | 16.86 | 5.00 | 0.8 | 0.2 | 0.424 | 0.361 | Valid |
| 8 | 17.00 | 16.86 | 5.00 | 0.7 | 0.3 | 0.519 | 0.361 | Valid |
| 9 | 18.17 | 16.86 | 5.00 | 0.7 | 0.2 | 0.398 | 0.361 | Valid |
| 10 | 20.47 | 16.86 | 5.00 | 0.6 | 0.4 | 0.880 | 0.361 | Valid |
| 11 | 18.78 | 16.86 | 5.00 | 0.4 | 0.6 | 0.311 | 0.361 | Invalid |
| 12 | 18.19 | 16.86 | 5.00 | 0.7 | 0.3 | 0.532 | 0.361 | Valid |
| 13 | 18.04 | 16.86 | 5.00 | 0.8 | 0.2 | 0.472 | 0.361 | Valid |
| 14 | 17.95 | 16.86 | 5.00 | 0.7 | 0.3 | 0.331 | 0.361 | Invalid |
| 15 | 19.05 | 16.86 | 5.00 | 0.6 | 0.4 | 0.534 | 0.361 | Valid |
| 16 | 18.31 | 16.86 | 5.00 | 0.7 | 0.3 | 0.440 | 0.361 | Valid |
| 17 | 18.00 | 16.86 | 5.00 | 0.8 | 0.2 | 0.456 | 0.361 | Valid |
| 18 | 19.04 | 16.86 | 5.00 | 0.7 | 0.3 | 0.662 | 0.361 | Valid |
| 19 | 18.78 | 16.86 | 5.00 | 0.6 | 0.4 | 0.468 | 0.361 | Valid |
| 20 | 18.43 | 16.86 | 5.00 | 0.7 | 0.2 | 0.587 | 0.361 | Valid |
| 21 | 19.28 | 16.86 | 5.00 | 0.4 | 0.6 | 0.393 | 0.361 | Valid |
| 22 | 19.28 | 16.86 | 5.00 | 0.2 | 0.8 | 0.242 | 0.361 | Invalid |
| 23 | 18.78 | 16.86 | 5.00 | 0.6 | 0.4 | 0.468 | 0.361 | Valid |
| 24 | 18.82 | 16.86 | 5.00 | 0.7 | 0.2 | 0.733 | 0.361 | Valid |
| 25 | 18.73 | 16.86 | 5.00 | 0.7 | 0.2 | 0.699 | 0.361 | Valid |

Appendix 12
Table Validity of Post Test

| No | Mp | Mt | SDt | $\mathbf{p}$ | $\mathbf{q}$ | $\boldsymbol{r}_{\mathbf{p b i}}=\frac{\boldsymbol{M}_{\boldsymbol{p}}-\boldsymbol{M}_{\boldsymbol{t}}}{\boldsymbol{S \boldsymbol { D } _ { \boldsymbol { t } }}} \sqrt{\frac{\boldsymbol{p}}{\boldsymbol{q}}}$ | Rt on 5\% <br> significant | Interpretation |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 17.50 | 17.33 | 3.50 | 0.7 | 0.2 | 0.089 | 0.361 | Invalid |
| 2 | 18.27 | 17.33 | 3.50 | 0.7 | 0.2 | 0.501 | 0.361 | Valid |
| 3 | 17.95 | 17.33 | 3.50 | 0.8 | 0.2 | 0.354 | 0.361 | Invalid |
| 4 | 19.41 | 17.33 | 3.50 | 0.5 | 0.4 | 0.654 | 0.361 | Valid |
| 5 | 18.66 | 17.33 | 3.50 | 0.7 | 0.3 | 0.573 | 0.361 | Valid |
| 6 | 16.00 | 17.33 | 3.50 | 0.3 | 0.6 | -0.266 | 0.361 | Invalid |
| 7 | 17.92 | 17.33 | 3.50 | 0.8 | 0.1 | 0.470 | 0.361 | Valid |
| 8 | 18.07 | 17.33 | 3.50 | 0.8 | 0.1 | 0.590 | 0.361 | Valid |
| 9 | 14.40 | 17.33 | 3.50 | 0.1 | 0.8 | -0.290 | 0.361 | Invalid |
| 10 | 18.29 | 17.33 | 3.50 | 0.8 | 0.2 | 0.548 | 0.361 | Valid |
| 11 | 18.04 | 17.33 | 3.50 | 0.8 | 0.1 | 0.565 | 0.361 | Valid |
| 12 | 18.28 | 17.33 | 3.50 | 0.8 | 0.1 | 0.758 | 0.361 | Valid |
| 13 | 18.45 | 17.33 | 3.50 | 0.7 | 0.2 | 0.598 | 0.361 | Valid |
| 14 | 18.13 | 17.33 | 3.50 | 0.7 | 0.2 | 0.426 | 0.361 | Valid |
| 15 | 21.00 | 17.33 | 3.50 | 0.2 | 0.8 | 0.524 | 0.361 | Valid |
| 16 | 16.20 | 17.33 | 3.50 | 0.1 | 0.8 | -1.127 | 0.361 | Invalid |
| 17 | 18.21 | 17.33 | 3.50 | 0.7 | 0.2 | 0.561 | 0.361 | Valid |
| 18 | 18.17 | 17.33 | 3.50 | 0.7 | 0.2 | 0.448 | 0.361 | Valid |
| 19 | 18.56 | 17.33 | 3.50 | 0.7 | 0.2 | 0.656 | 0.361 | Valid |
| 20 | 18.04 | 17.33 | 3.50 | 0.8 | 0.2 | 0.404 | 0.361 | Valid |
| 21 | 17.88 | 17.33 | 3.50 | 0.9 | 0.1 | 0.471 | 0.361 | Valid |
| 22 | 18.29 | 17.33 | 3.50 | 0.8 | 0.2 | 0.548 | 0.361 | Valid |
| 23 | 18.80 | 17.33 | 3.50 | 0.8 | 0.2 | 0.668 | 0.361 | Valid |
| 24 | 18.04 | 17.33 | 3.50 | 0.8 | 0.1 | 0.565 | 0.361 | Valid |
| 25 | 18.07 | 17.33 | 3.50 | 0.8 | 0.1 | 0.590 | 0.361 | Valid |

## Appendix 13

## Reliability Pre Test

To get reliability of the test, the researcher uses formula KR-20:

$$
\begin{aligned}
& \mathrm{R}_{11}=\left(\frac{n}{n-1}\right)\left(\frac{s_{t^{2}}-\sum p q}{s_{t^{2}}}\right) \\
& \mathrm{N}=30 \\
& \sum \mathrm{Xt}=506 \\
& \sum \mathrm{Xt}^{2}=9280 \\
& \sum \mathrm{pq}=4.07 \\
& \mathrm{~S}_{\mathrm{t}}^{2} \quad=\sum \mathrm{Xt}^{2}-\left(\frac{\sum \mathrm{xt}}{N}\right)^{2} \\
& \quad=9280-\left(\frac{506}{25}\right)^{2}=9280-16.86^{2}=9280-284.26=8995.74 \\
& \mathrm{~S}_{\mathrm{t}}^{2} \quad=\frac{\sum \mathrm{xt} 2}{N}=\frac{8995.74}{30}
\end{aligned}
$$

$$
\mathrm{S}_{\mathrm{t}}^{2}=299.858
$$

$$
\mathrm{R}_{11}=\left(\frac{n}{n-1}\right)\left(\frac{s_{t^{2}}-\sum p q}{s_{t^{2}}}\right)
$$

$$
\mathrm{R}_{11}=\left(\frac{30}{30-1}\right)\left(\frac{299.858-4.07}{299.858}\right)=\left(\frac{30}{29}\right)\left(\frac{65.83}{75.66}\right)
$$

$$
=(1.03)(0.98)
$$

$$
=1.01\left(\mathrm{r}_{11}>0.70=\text { reliable }\right)
$$

Test is reliable if $r_{\text {count }}>r_{\text {tabel }}$. Based on calculation above, the test have high reliability.

## Appendix 14

## Reliability Post Test

To get reliability of the test, the researcher uses formula KR-20:

$$
\begin{aligned}
& \mathrm{R}_{11}=\left(\frac{n}{n-1}\right)\left(\frac{s_{t^{2}}-\sum p q}{s_{t^{2}}}\right) \\
& \mathrm{N}=30 \\
& \sum \mathrm{Xt}=520 \\
& \sum \mathrm{Xt}^{2}=9378 \\
& \sum \mathrm{pq}=9.83 \\
& \mathrm{~S}_{\mathrm{t}}^{2} \quad=\sum \mathrm{Xt}^{2}-\left(\frac{\sum \mathrm{xt}}{N}\right)^{2} \\
&=9378-\left(\frac{520}{30}\right)^{2}=9378-17.33^{2}=9378-300.32=9077.68 \\
& \mathrm{~S}_{\mathrm{t}}^{2} \quad=\frac{\sum \mathrm{Xt} 2}{N}=\frac{9077.68}{30} \\
& \mathrm{~S}_{\mathrm{t}}^{2} \quad=302.589 \\
& \mathrm{R}_{11}=\left(\frac{n}{n-1}\right)\left(\frac{s_{t^{2}}-\sum p q}{s_{t^{2}}}\right) \\
& \mathrm{R}_{11}=\left(\frac{30}{30-1}\right)\left(\frac{302.589-9.83}{302.589}\right)=\left(\frac{30}{29}\right)\left(\frac{292.759}{302.589}\right) \\
&=(1.03)(0.96) \\
&= 0.99\left(\mathrm{r}_{11}>0.70=\text { reliable }\right)
\end{aligned}
$$

Test is reliable if $\mathrm{r}_{\text {count }}>\mathrm{r}_{\text {tabel }}$. Based on calculation above, the test has high reliability.

## Appendix 15

## Score of Experimental Class and Control Class on Pre Test

1. Score of Experimental Class Pre Test before using Direct Method

| No | The Initial Name of Students (n) | Pre-Test |
| :---: | :---: | :---: |
| 1. | ABB | 65 |
| 2. | ARP | 50 |
| 3. | ATS | 50 |
| 4. | AA | 65 |
| 5. | AILS | 50 |
| 6. | BRNR | 65 |
| 7. | FF | 45 |
| 8. | HFN | 65 |
| 9. | ISL | 50 |
| 10. | IRMH | 70 |
| 11. | KS | 65 |
| 12. | MAN | 45 |
| 13. | MRB | 70 |
| 14. | MR | 55 |
| 15. | ML | 60 |
| 16. | NS | 60 |
| 17. | NAS | 45 |
| 18. | NHL | 75 |
| 19. | PMN | 60 |
| 20. | PA | 40 |
| 21. | RSL | 60 |
| 22. | RFCN | 40 |
| 23. | RAN | 60 |
| 24. | RWS | 75 |
| 25. | SP | 35 |
| 26. | TWS | 60 |
| 27. | WY | 75 |
| 28. | YN | 60 |
| 29. | YUSS | 30 |
| 30. | ZA | 60 |
| 31. | ZHL | 30 |
|  | TOTAL | 1735 |

## 2. Score of Control Class Pre Test

| No | The Initial Name of Students (n) | Pre-Test |
| :---: | :---: | :---: |
| 1. | AARN | 65 |
| 2. | AAH | 35 |
| 3. | ATW | 70 |
| 4. | ASM | 35 |
| 5. | AAA | 70 |
| 6. | DMN | 45 |
| 7. | FHS | 35 |
| 8. | F | 45 |
| 9. | FHN | 60 |
| 10. | FN | 55 |
| 11. | HSH | 30 |
| 12. | IP | 60 |
| 13. | INL | 45 |
| 14. | IS | 55 |
| 15. | MDN | 55 |
| 16. | MKS | 45 |
| 17. | MRF | 60 |
| 18. | MRL | 50 |
| 19. | NN | 70 |
| 20. | NFH | 50 |
| 21. | PN | 60 |
| 22. | PA | 55 |
| 23. | RS | 25 |
| 24. | SAL | 55 |
| 25. | SF | 60 |
| 26. | SILN | 30 |
| 27. | THP | 55 |
| 28. | WA | 55 |
| 29. | YHP | 60 |
| 30. | ZPSAH | 55 |
| TOTAL |  | 1545 |

## Appendix 16

## Score of Experimental Class and Control Class on Post Test

1. Score of Experimental Class Post Test after Using Genre Based Language Teaching (GBLT)

| No | The Initial Name of Students (n) | Post-Test |
| :---: | :---: | :---: |
| 1. | ABB | 75 |
| 2. | ARP | 85 |
| 3. | ATS | 80 |
| 4. | AA | 75 |
| 5. | AILS | 85 |
| 6. | BRNR | 80 |
| 7. | FF | 85 |
| 8. | HFN | 80 |
| 9. | ISL | 85 |
| 10. | IRMH | 85 |
| 11. | KS | 80 |
| 12. | MAN | 85 |
| 13. | MRB | 70 |
| 14. | MR | 90 |
| 15. | ML | 75 |
| 16. | NS | 95 |
| 17. | NAS | 80 |
| 18. | NHL | 90 |
| 19. | PMN | 85 |
| 20. | PA | 100 |
| 21. | RSL | 85 |
| 22. | RFCN | 90 |
| 23. | RAN | 65 |
| 24. | RWS | 75 |
| 25. | SP | 90 |
| 26. | TWS | 85 |
| 27. | WY | 80 |
| 28. | YN | 90 |
| 29. | YUSS | 80 |


| 30. | ZA | 85 |
| :---: | :--- | :---: |
| 31. | ZHL | 80 |
| TOTAL |  | 2575 |

## 2. Score of Control Class Post Test

| No | The Initial Name of Students (n) | Post-Test |
| :---: | :---: | :---: |
| 1. | AARN | 60 |
| 2. | AAH | 85 |
| 1. | ATW | 65 |
| 2. | ASM | 80 |
| 3. | AAA | 60 |
| 4. | DMN | 70 |
| 5. | FHS | 65 |
| 6. | F | 80 |
| 7. | FHN | 65 |
| 8. | FN | 75 |
| 9. | HSH | 55 |
| 10. | IP | 65 |
| 11. | INL | 70 |
| 12. | IS | 65 |
| 13. | MDN | 75 |
| 14. | MKS | 70 |
| 15. | MRF | 60 |
| 16. | MRL | 70 |
| 17. | NN | 50 |
| 18. | NFH | 75 |
| 19. | PN | 65 |
| 20. | PA | 70 |
| 21. | RS | 60 |
| 22. | SAL | 75 |
| 23. | SF | 70 |
| 24. | SILN | 70 |
| 25. | THP | 65 |
| 26. | WA | 70 |
| 27. | YHP | 70 |
| 28. | ZPSAH | 65 |
|  | TOTAL | 2040 |

## Appendix 17

## HOMOGENEITY TEST (PRE-TEST)

Calculation of parameter to get variant of the first class as experimental class sample by using direct method and variant of the second class as control class sample by using conventional method are used homogeneity test by using formula:
$S^{2}=\frac{n \Sigma x i^{2}-(\Sigma x i)}{n(n-1)}$
Hypotheses:
$\mathrm{H}_{0} \quad: \delta_{1}^{2}=\delta_{2}^{2}$
$\mathrm{H}_{1} \quad: \delta_{1}^{2} \neq \delta_{2}^{2}$
A. Variant of the VIII-2 class is:

| $\mathbf{N O}$ | $\mathbf{X i}$ | $\mathbf{X i}^{\mathbf{2}}$ |
| :---: | :---: | :---: |
| 1. | 30 | 900 |
| 2. | 30 | 900 |
| 3. | 35 | 1225 |
| 4. | 40 | 1600 |
| 5. | 40 | 1600 |
| 6. | 45 | 2025 |
| 7. | 45 | 2025 |
| 8. | 45 | 2025 |
| 9. | 50 | 2500 |
| 10. | 50 | 2500 |
| 11. | 50 | 2500 |
| 12. | 50 | 2500 |
| 13. | 55 | 3025 |
| 14. | 60 | 3600 |
| 15. | 60 | 3600 |
| 16. | 60 | 3600 |
| 17. | 60 | 3600 |
| 18. | 60 | 3600 |


| 19. | 60 | 3600 |
| :---: | :---: | :---: |
| 20. | 60 | 3600 |
| 21. | 60 | 3600 |
| 22. | 65 | 4225 |
| 23. | 65 | 4225 |
| 24. | 65 | 4225 |
| 25. | 65 | 4225 |
| 26. | 65 | 4225 |
| 27. | 70 | 4900 |
| 28. | 70 | 4900 |
| 29. | 75 | 5625 |
| 30. | 75 | 5625 |
| 31. | 75 | 5625 |
|  | 1735 | 101925 |

n $=31$
$\sum x i=1735$
$\sum_{x i} 2=101925$
So:

$$
\begin{aligned}
S^{2} & =\frac{n \Sigma x i^{2}-(\Sigma x i)}{n(n-1)} \\
& =\frac{31(101925)-(1735)^{2}}{31(31-1)} \\
& =\frac{3159675-3010225}{31(30)} \\
& =\frac{149450}{930} \\
& =160.70
\end{aligned}
$$

B. Variant of the VIII-3 class is:

| NO | $\mathbf{X i}$ | $\mathbf{X i}^{2}$ |
| :---: | :---: | :---: |
| 1. | 25 | 625 |
| 2. | 30 | 900 |


| 3. | 30 | 900 |
| :---: | :---: | :---: |
| 4. | 35 | 1225 |
| 5. | 35 | 1225 |
| 6. | 35 | 1225 |
| 7. | 45 | 2025 |
| 8. | 45 | 2025 |
| 9. | 45 | 2025 |
| 10. | 45 | 2025 |
| 11. | 50 | 2500 |
| 12. | 50 | 2500 |
| 13. | 55 | 3025 |
| 14. | 55 | 3025 |
| 15. | 55 | 3025 |
| 16. | 55 | 3025 |
| 17. | 55 | 3025 |
| 18. | 55 | 3025 |
| 19. | 55 | 3025 |
| 20. | 55 | 3025 |
| 21. | 60 | 3600 |
| 22. | 60 | 3600 |
| 23. | 60 | 3600 |
| 24. | 60 | 3600 |
| 25. | 60 | 3600 |
| 26. | 60 | 3600 |
| 27. | 65 | 4225 |
| 28. | 70 | 4900 |
| 29. | 70 | 4900 |
| 30. | 70 | 4900 |
|  | 1545 | 83925 |
|  |  |  |
| 25 |  |  |

$$
\begin{aligned}
& \mathrm{N} \quad=30 \\
& \sum x i=1545 \\
& \sum_{x i} 2=83925
\end{aligned}
$$

So:

$$
\begin{aligned}
S^{2} & =\frac{n \Sigma x i^{2}-\left(\sum x i\right)}{n(n-1)} \\
& =\frac{30(83925)-(1545)^{2}}{30(30-1)} \\
& =\frac{2517750-2387025}{30(29)} \\
& =\frac{130725}{870} \\
& =150.26
\end{aligned}
$$

C. Variant of the VIII-4 class is:

| $\mathbf{N O}$ | $\mathbf{X i}$ | $\mathbf{X i}^{\mathbf{2}}$ |
| :---: | :---: | :---: |
| 1 | 35 | 1225 |
| 2 | 35 | 1225 |
| 3 | 40 | 1600 |
| 4 | 45 | 2025 |
| 5 | 45 | 2025 |
| 6 | 45 | 2025 |
| 7 | 45 | 2025 |
| 8 | 50 | 2500 |
| 9 | 50 | 2500 |
| 10 | 50 | 2500 |
| 11 | 50 | 2500 |
| 12 | 50 | 2500 |
| 13 | 55 | 3025 |
| 14 | 55 | 3025 |
| 15 | 55 | 3025 |
| 16 | 55 | 3025 |
| 17 | 55 | 3025 |
| 18 | 55 | 3025 |
| 19 | 55 | 3025 |
| 20 | 55 | 3025 |
| 21 | 55 | 3025 |
| 22 | 60 | 3600 |
| 23 | 60 | 3600 |
| 24 | 60 | 3600 |


| 25 | 60 | 3600 |
| :---: | :---: | :---: |
| 26 | 60 | 3600 |
| 27 | 70 | 4900 |
| 28 | 70 | 4900 |
| 29 | 70 | 4900 |
| 30 | 70 | 4900 |
|  | 1615 | 89475 |

$$
\begin{aligned}
& \mathrm{N} \quad=30 \\
& \sum x i=1615
\end{aligned}
$$

$$
\sum_{x i} 2=89475
$$

So:

$$
\begin{aligned}
S^{2} & =\frac{n \Sigma x i^{2}-(\Sigma x i)}{n(n-1)} \\
& =\frac{30(89475)-(1615)^{2}}{30(30-1)} \\
& =\frac{2684250-2608225}{30(29)} \\
& =\frac{76025}{870} \\
& =87.39
\end{aligned}
$$

The Formula was used to test hypothesis was:

1. VIII-2 and VIII-3 :

$$
\mathrm{F}=\frac{\text { The Biggest Variant }}{\text { The Smallest Variant }}
$$

So:

$$
\begin{aligned}
\mathrm{F} & =\frac{160.70}{150.26} \\
& =1.07
\end{aligned}
$$

After doing the calculation, researcher found that $\mathrm{F}_{\text {count }}=1.07$ with $\alpha 5 \%$ and $\mathrm{dk}=30$ and 29 from the distribution list F , researcher found that $\mathrm{F}_{\text {table }}=1.85$,
cause $\mathrm{F}_{\text {count }}<\mathrm{F}_{\text {table }}(1.07<1.85)$. So, there is no difference the variant between the VIII-2 class and VIII-3 class. It means that the variant is homogenous.
2. VIII-2 and VIII-4 :
$\mathrm{F}=\frac{\text { The Biggest Variant }}{\text { The Smallest Variant }}$ So:
$\mathrm{F}=\frac{160.70}{87.39}=1.84$
After doing the calculation, researcher found that $\mathrm{F}_{\text {count }}=1.84$ with $\alpha 5 \%$ and $\mathrm{dk}=30$ and 29 from the distribution list F , researcher found that $\mathrm{F}_{\text {table }}=1.85$, cause $\mathrm{F}_{\text {count }}<\mathrm{F}_{\text {table }}(1.84<1.85)$. So, there is no difference the variant between the VIII-2 class and VIII-4 class. It means that the variant is homogenous.
3. VIII-3 and VIII-4 :
$\mathrm{F}=\frac{\text { The Biggest Variant }}{\text { The Smallest Variant }}$
So:
$\mathrm{F}=\frac{150.26}{87.39}$
$=1.72$

After doing the calculation, researcher found that $\mathrm{F}_{\text {count }}=1.72$ with $\alpha 5 \%$ and $\mathrm{dk}=29$ from the distribution list F , researcher found that $\mathrm{F}_{\text {table }}=1.85$, cause $\mathrm{F}_{\text {count }}<\mathrm{F}_{\text {table }}(1.72<1.85)$. So, there is no difference the variant between the VIII3 class and VIII-4 class. It means that the variant is homogenous.

## Appendix 18

## HOMOGENEITY TEST (POST-TEST)

Calculation of parameter to get variant of the first class as experimental class sample by using direct method and variant of the second class as control class sample by using conventional method are used homogeneity test by using formula:
$S^{2}=\frac{n \Sigma x i^{2}-(\Sigma x i)}{n(n-1)}$
Hypotheses:
$\mathrm{H}_{0} \quad: \delta_{1}^{2}=\delta_{2}^{2}$
$\mathrm{H}_{1} \quad: \delta_{1}^{2} \neq \delta_{2}^{2}$
D. Variant of the VIII-2 class is:

| $\mathbf{N O}$ | $\mathbf{X i}$ | $\mathbf{X i}^{2}$ |
| :---: | :---: | :---: |
| 32. | 65 | 4225 |
| 33. | 70 | 4900 |
| 34. | 75 | 5625 |
| 35. | 75 | 5625 |
| 36. | 75 | 5625 |
| 37. | 75 | 5625 |
| 38. | 80 | 6400 |
| 39. | 80 | 6400 |
| 40. | 80 | 6400 |
| 41. | 80 | 6400 |
| 42. | 80 | 6400 |
| 43. | 80 | 6400 |
| 44. | 80 | 6400 |
| 45. | 80 | 6400 |
| 46. | 85 | 7225 |
| 47. | 85 | 7225 |
| 48. | 85 | 7225 |
| 49. | 85 | 7225 |


| 50. | 85 | 7225 |
| :---: | :---: | :---: |
| 51. | 85 | 7225 |
| 52. | 85 | 7225 |
| 53. | 85 | 7225 |
| 54. | 85 | 7225 |
| 55. | 85 | 7225 |
| 56. | 90 | 8100 |
| 57. | 90 | 8100 |
| 58. | 90 | 8100 |
| 59. | 90 | 8100 |
| 60. | 95 | 9025 |
| 61. | 95 | 9025 |
| 62. | 100 | 10000 |
|  | 2575 | 215525 |

$\mathrm{n}=31$
$\sum \mathrm{xi}=2575$
$\sum_{\mathrm{xi}} 2=215525$
So:

$$
\begin{aligned}
S^{2} & =\frac{n \sum x i^{2}-\left(\sum x i\right)}{n(n-1)} \\
& =\frac{31(215525)-(2575)^{2}}{31(31-1)} \\
& =\frac{6681275-6630625}{31(30)} \\
& =\frac{50650}{930} \\
& =54.46
\end{aligned}
$$

E. Variant of the VIII-3 class is:

| $\mathbf{N O}$ | $\mathbf{X i}$ | $\mathbf{X i}^{\mathbf{2}}$ |
| :---: | :---: | :---: |
| 31. | 50 | 2500 |
| 32. | 55 | 3025 |


| 33. | 60 | 3600 |
| :---: | :---: | :---: |
| 34. | 60 | 3600 |
| 35. | 60 | 3600 |
| 36. | 60 | 3600 |
| 37. | 65 | 4225 |
| 38. | 65 | 4225 |
| 39. | 65 | 4225 |
| 40. | 65 | 4225 |
| 41. | 65 | 4225 |
| 42. | 65 | 4225 |
| 43. | 65 | 4225 |
| 44. | 65 | 4225 |
| 45. | 70 | 4900 |
| 46. | 70 | 4900 |
| 47. | 70 | 4900 |
| 48. | 70 | 4900 |
| 49. | 70 | 4900 |
| 50. | 70 | 4900 |
| 51. | 70 | 4900 |
| 52. | 70 | 4900 |
| 53. | 70 | 4900 |
| 54. | 75 | 5625 |
| 55. | 75 | 5625 |
| 56. | 75 | 5625 |
| 57. | 75 | 5625 |
| 58. | 80 | 6400 |
| 59. | 80 | 6400 |
| 60. | 85 | 7225 |
|  | 2040 | 140350 |
|  |  |  |

$\mathrm{N}=30$
$\sum \mathrm{xi}=2040$
$\sum_{\mathrm{xi}} 2=140350$
So:

$$
\begin{aligned}
S^{2} & =\frac{n \Sigma x i^{2}-(\Sigma x i)}{n(n-1)} \\
& =\frac{30(140350)-(2040)^{2}}{30(30-1)} \\
& =\frac{4210500-4161600}{30(29)} \\
& =\frac{48900}{870} \\
& =56.21
\end{aligned}
$$

The Formula was used to test hypothesis was:
4. VIII-2 and VIII-3:

$$
\mathrm{F}=\frac{\text { The Biggest Variant }}{\text { The Smallest Variant }}
$$

So:

$$
F=\frac{56.21}{54.46}
$$

$$
=1.03
$$

After doing the calculation, researcher found that $\mathrm{F}_{\text {count }}=1.03$ with $\alpha 5 \%$ and $\mathrm{dk}=30$ and 29 from the distribution list F , researcher found that $\mathrm{F}_{\text {table }}=1.85$, cause $\mathrm{F}_{\text {count }}<\mathrm{F}_{\text {table }}(1.03<1.85)$. So, there is no difference the variant between the VIII-2 class and VIII-3 class. It means that the variant is homogenous.

## Appendix 19

## RESULT OF NORMALITY TEST IN PRE TEST

## RESULT OF THE NORMALITY TEST OF VIII-2 IN PRE-TEST

1. The score of VIII-2 class in pre test from low score to high score:

| 30 | 30 | 35 | 40 | 40 | 45 | 45 | 45 | 50 | 50 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 50 | 50 | 55 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| 60 | 65 | 65 | 65 | 65 | 65 | 70 | 70 | 75 | 75 |
| 7 |  |  |  |  |  |  |  |  |  |

2. High $=75$

Low $=30$
Range $=$ High - Low
$=75-30$
$=45$
3. Total of Classes $=1+3,3 \log (n)$

$$
=1+3,3 \log (31)
$$

$$
=1+3,3(1.49)
$$

$$
=1+4.92
$$

$$
=5.92
$$

$$
=6
$$

4. Length of Classes $=\frac{\text { range }}{\text { total of class }}=\frac{45}{6}=7.5=8$
5. Mean

| Interval Class | F | X | x | fx | $\mathrm{x}^{2}$ | $\mathrm{fx}^{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $30-37$ | 3 | 33.5 | +3 | 9 | 9 | 27 |
| $38-45$ | 4 | 41.5 | +2 | 8 | 4 | 16 |
| $46-53$ | 5 | 49.5 | +1 | 5 | 1 | 5 |
| $54-61$ | 9 | $\mathbf{5 7 . 5}$ | 0 | 0 | 0 | 0 |
| $62-69$ | 5 | 65.5 | -1 | -5 | 1 | 5 |
| $70-77$ | 5 | 73.5 | -2 | -10 | 4 | 20 |

$$
\begin{array}{rl}
\hline i & =8 \\
M x & 31 \\
= & - \\
M^{1}+i \frac{\Sigma f x^{1}}{N} \\
& =57,5+8\left(\frac{7}{31}\right) \\
& =57,5+8(0.23) \\
& =57,5+1.84 \\
& =59.34 \\
\mathrm{SD}_{\mathrm{t}} & =i \sqrt{\frac{\sum f \prime^{2}}{n}-\left(\frac{\sum f x \prime}{n}\right)^{2}} \\
& =8 \sqrt{\frac{73}{31}-\left(\frac{7}{31}\right)^{2}} \\
& =8 \sqrt{2.35-(0.23)^{2}} \\
& =8 \sqrt{2.35-0.053} \\
& =8 \sqrt{2.30} \\
& =8 \times 1.52 \\
& =12.16
\end{array}
$$

Table of Normality Data Test with Chi Kuadrad Formula

| Interval <br> of Score | Real Upper <br> Limit | Z- <br> Score | Limit of <br> Large of the <br> Area | Large of <br> area | $\mathrm{f}_{\mathrm{h}}$ | $\mathrm{f}_{0}$ | $\underline{\left(\mathrm{f}_{0}-\mathrm{f}_{\mathrm{h}}\right.} \mathbf{f _ { \mathrm { h } }}$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $70-$ | 77.5 | 1.49 | 0.4319 | 0.1324 | 4.10 | 5 | 0.22 |
| 77 | 69.5 | 0.84 | 0.2995 | 0.2281 | 7.07 | 5 | -0.29 |
| $62-69$ | 61.5 | 0.18 | 0.0714 | -0.24421 | -7.57 | 9 | -2.19 |
| $54-61$ | 53.5 | -0.48 | 0.31561 | 0.18847 | 5.84 | 5 | -0.14 |
| $46-53$ | 45.5 | -1.14 | 0.12714 | 0.09121 | 2.83 | 4 | 0.49 |
| $38-45$ | 37.5 | -1.80 | 0.03593 | 0.02879 | 0.89 | 3 | 2.37 |


|  | 29.5 | -2.45 | 0.00714 |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

Based on the table above, the reseracher found that $\mathrm{x}^{2}{ }_{\text {count }}=0.46$ while $\mathrm{x}_{\text {table }}^{2}=11.070$ cause $\mathrm{x}^{2}{ }_{\text {count }}<\mathrm{x}_{\text {table }}^{2}(0.46<11.070)$ with degree of freedom $(\mathrm{dk})=$ 6-1 = 5 and significant level $\alpha=5 \%$. So distribution of VIII-2 class (pre-test) is normal.
6. Median

| No | Interval | F | Fk |
| :---: | :---: | :---: | :---: |
| 1 | $30-37$ | 3 | 3 |
| 2 | $38-45$ | 4 | 7 |
| 3 | $46-53$ | 5 | 12 |
| 4 | $\mathbf{5 4 - 6 1}$ | $\mathbf{9}$ | 21 |
| 5 | $62-69$ | 5 | 26 |
| 6 | $70-77$ | 5 | 31 |

Position of Me in the interval of classes is number 4, that:

$$
\begin{aligned}
\mathrm{Bb} & =53.5 \\
\mathrm{~F} & =5 \\
\mathrm{fm} & =9 \\
\mathrm{i} & =8 \\
\mathrm{n} & =31
\end{aligned}
$$

## $1 / 2 \mathrm{n}=15.5$

So :

$$
\begin{aligned}
\mathrm{Me} & =\mathrm{Bb}+\mathrm{i}\left(\frac{n / 2-F}{f m}\right) \\
& =53.5+8\left(\frac{15.5-5}{9}\right) \\
& =53.5+8(1.17) \\
& =53.5+9.36 \\
& =62.86
\end{aligned}
$$

7. Modus

| No | Interval | F | Fk |
| :---: | :---: | :---: | :---: |
| 1 | $30-37$ | 3 | 3 |
| 2 | $38-45$ | 4 | 7 |
| 3 | $46-53$ | 5 | 12 |
| 4 | $\mathbf{5 4}-\mathbf{6 1}$ | $\mathbf{9}$ | 21 |
| 5 | $62-69$ | 5 | 26 |
| 6 | $70-77$ | 5 | 31 |

$$
\begin{aligned}
& \mathrm{M}_{\mathrm{o}}=L+\frac{d_{1}}{d_{1}+d_{2}} i \\
& \mathrm{~L}=53.5 \\
& \mathrm{~d}_{1}=5 \\
& \mathrm{~d}_{2}=5 \\
& \mathrm{i}=8
\end{aligned}
$$

So,

$$
\begin{aligned}
\mathrm{M}_{\mathrm{o}} & =53.5+\frac{5}{5+5} 8 \\
& =53.5+0.5(8) \\
& =53.5+4
\end{aligned}
$$

$$
=57.5
$$

## RESULT OF NORMALITY TEST IN PRE TEST

## RESULT OF THE NORMALITY TEST OF VIII-3 IN PRE-TEST

1. The score of VIII-3 class in pre test from low score to high score:

| 25 | 30 | 30 | 35 | 35 | 35 | 45 | 45 | 45 | 45 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 50 | 50 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 |
| 60 | 60 | 60 | 60 | 60 | 60 | 65 | 70 | 70 | 70 |

2. High $=70$

Low $=25$
Range $=$ High - Low

$$
=70-25=45
$$

3. Total of Classes $=1+3,3 \log (\mathrm{n})$

$$
\begin{aligned}
& =1+3,3 \log (30) \\
& =1+3,3(1.477) \\
& =1+4.874 \\
& =5.874 \\
& =6
\end{aligned}
$$

4. Length of Classes $=\frac{\text { range }}{\text { total of class }}=\frac{45}{6}=7.5=8$
5. Mean

| Interval Class | F | X | x | fx | $\mathrm{x}^{2}$ | $\mathrm{fx}^{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $25-32$ | 3 | 28.5 | +3 | 9 | 9 | 27 |
| $33-40$ | 3 | 36.5 | +2 | 6 | 4 | 12 |
| $41-48$ | 4 | 44.5 | +1 | 4 | 1 | 4 |
| $49-56$ | 10 | $\mathbf{5 2 . 5}$ | 0 | 0 | 0 | 0 |
| $57-64$ | 6 | 60.5 | -1 | -6 | 1 | 6 |
| $65-72$ | 4 | 68.5 | -2 | -8 | 4 | 16 |
| $i=8$ | 30 | - | - | 5 | - | 65 |

$$
\begin{aligned}
M x & =M^{1}+i \frac{\Sigma f x^{1}}{N} \\
& =52.5+8\left(\frac{5}{30}\right) \\
& =52.5+8(0.17) \\
& =52.5+1.36 \\
& =53.86 \\
\mathrm{SD}_{\mathrm{t}} & =i \sqrt{\frac{\sum f x^{\prime 2}}{n}-\left(\frac{\sum f x \prime}{n}\right)^{2}} \\
& =8 \sqrt{\frac{65}{30}-\left(\frac{5}{30}\right)^{2}} \\
& =8 \sqrt{2.17-(0.17)^{2}} \\
& =8 \sqrt{2.17-0.029} \\
& =8 \sqrt{2.141} \\
& =8 \times 1.46 \\
& =11.68
\end{aligned}
$$

Table of Normality Data Test with Chi Kuadrad Formula

| Interval <br> of Score | Real Upper <br> Limit | $\mathrm{Z}-$ <br> Score | Limit of <br> Large of the <br> Area | Large of <br> area | $\mathrm{f}_{\mathrm{h}}$ | $\mathrm{f}_{0}$ | $\frac{\left(\mathrm{f}_{0}-\mathrm{f}_{\mathrm{h}}\right)}{\mathrm{f}_{\mathrm{h}}}$ <br> $65-72$ $\mathrm{72.5}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $57-64$ | 64.5 | 0.91 | 0.3186 | 0.1266 | 3.80 | 4 | 0.05 |
| $49-56$ | 56.5 | 0.23 | 0.0910 | 0.2276 | 6.83 | 6 | -0.12 |
| $41-48$ | 48.5 | -0.46 | 0.32276 | -0.23176 | -6.95 | 10 | -2.44 |
| $33-40$ | 40.5 | -1.14 | 0.12714 | 0.19562 | 5.87 | 4 | 0.32 |
| $25-32$ | 32.5 | -1.83 | 0.03362 | 0.09352 | 2.81 | 3 | 0.07 |
|  | 24.5 | -2.51 | 0.00604 | 0.08748 | 2.62 | 3 | 0.15 |



Based on the table above, the reseracher found that $\mathrm{x}^{2}$ count $=-1.97$ while $\mathrm{x}^{2}$ table $=11.070$ cause $\mathrm{x}^{2}{ }_{\text {count }}<\mathrm{x}_{\text {table }}^{2}(-1.97<11.070)$ with degree of freedom ( dk )
$=6-1=5$ and significant level $\alpha=5 \%$. So distribution of VIII-3 class (pre-test)
is normal.
6. Median

| No | Interval | F | Fk |
| :---: | :---: | :---: | :---: |
| 1 | $25-32$ | 3 | 3 |
| 2 | $33-40$ | 3 | 6 |
| 3 | $41-48$ | 4 | 10 |
| 4 | $\mathbf{4 9}-\mathbf{5 6}$ | $\mathbf{1 0}$ | 20 |
| 5 | $57-64$ | 6 | 26 |
| 6 | $65-72$ | 4 | 30 |

Position of Me in the interval of classes is number 4, that:
$\mathrm{Bb}=48.5$
$\mathrm{F}=4$
$\mathrm{fm}=10$
i $=8$
$\mathrm{n}=30$

## $1 / 2 \mathrm{n}=15$

So :

$$
\begin{aligned}
\mathrm{Me} & =\mathrm{Bb}+\mathrm{i}\left(\frac{n / 2-F}{f m}\right) \\
& =48.5+8\left(\frac{15-4}{10}\right) \\
& =48.5+8(1.1) \\
& =48.5+8.8 \\
& =57.3
\end{aligned}
$$

7. Modus

| No | Interval | F | Fk |
| :---: | :---: | :---: | :---: |
| 1 | $25-32$ | 3 | 3 |
| 2 | $33-40$ | 3 | 6 |
| 3 | $41-48$ | 4 | 10 |
| 4 | $\mathbf{4 9}-\mathbf{5 6}$ | $\mathbf{1 0}$ | 20 |
| 5 | $57-64$ | 6 | 26 |
| 6 | $65-72$ | 4 | 30 |

$$
\begin{aligned}
\mathrm{M}_{\mathrm{o}} & =L+\frac{d_{1}}{d_{1}+d_{2}} i \\
\mathrm{~L} & =48.5 \\
\mathrm{~d}_{1} & =4 \\
\mathrm{~d}_{2} & =6 \\
\mathrm{i} & =8
\end{aligned}
$$

So,

$$
\begin{aligned}
\mathrm{M}_{\mathrm{o}} & =48.5+\frac{4}{4+6} 8 \\
& =48.5+0.4(8) \\
& =48.5+3.2
\end{aligned}
$$

$$
=51.7
$$

## RESULT OF NORMALITY TEST IN PRE TEST

## RESULT OF THE NORMALITY TEST OF VIII-4 IN PRE-TEST

1. The score of VIII-4 class in pre test from low score to high score:

| 35 | 35 | 40 | 45 | 45 | 45 | 45 | 50 | 50 | 50 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 50 | 50 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 |
| 55 | 60 | 60 | 60 | 60 | 60 | 70 | 70 | 70 | 70 |

2. High $=70$

Low $=35$
Range = High - Low
$=70-35$
$=35$
3. Total of Classes $=1+3,3 \log (\mathrm{n})$

$$
\begin{aligned}
& =1+3,3 \log (30) \\
& =1+3,3(1.477) \\
& =1+4.874 \\
& =5.874 \\
& =6
\end{aligned}
$$

4. Length of Classes $=\frac{\text { range }}{\text { total of class }}=\frac{35}{6}=5.83=6$
5. Mean

| Interval Class | F | X | x | fx | $\mathrm{x}^{2}$ | $\mathrm{fx}^{2}$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |


| $35-40$ | 3 | 37.5 | +3 | 9 | 9 | 27 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $41-46$ | 4 | 43.5 | +2 | 8 | 4 | 16 |
| $47-52$ | 5 | 49.5 | +1 | 5 | 1 | 5 |
| $53-58$ | 9 | $\mathbf{5 5 . 5}$ | 0 | 0 | 0 | 0 |
| $59-64$ | 5 | 61.5 | -1 | -5 | 1 | 5 |
| $65-70$ | 4 | 67.5 | -2 | -8 | 4 | 16 |
| $i=6$ | 30 | - | - | 9 | - | 69 |

$$
\begin{aligned}
M x & =M^{1}+i \frac{\Sigma f x^{1}}{N} \\
& =55.5+6\left(\frac{9}{30}\right) \\
& =55.5+6(0.3) \\
& =55.5+1.8 \\
& =57.3
\end{aligned}
$$

$$
\begin{aligned}
\mathrm{SD}_{\mathrm{t}} & =i \sqrt{\frac{\sum f x^{2}}{n}-\left(\frac{\sum f x^{\prime}}{n}\right)^{2}} \\
& =6 \sqrt{\frac{69}{30}-\left(\frac{11}{30}\right)^{2}} \\
& =6 \sqrt{2.3-(0.3)^{2}} \\
& =6 \sqrt{2.3-0.09} \\
& =6 \sqrt{2.21} \\
& =6 \times 1.49 \\
& =8.94
\end{aligned}
$$

Table of Normality Data Test with Chi Kuadrad Formula

| Interval of Score | Real Upper Limit | $\begin{gathered} \mathrm{Z}- \\ \text { Score } \end{gathered}$ | Limit of Large of the Area | Large of area | $\mathrm{f}_{\mathrm{h}}$ | $\mathrm{f}_{0}$ | $\underline{\left(f_{0}-\mathrm{f}_{\mathrm{h}}\right)} \mathrm{f}_{\mathrm{h}}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 65-70 | 70.5 | 1.48 | 0.4306 |  |  |  |  |
|  |  |  |  | 0.1396 | 4.19 | 4 | -0.05 |
| 59-64 | 64.5 | 0.81 | 0.2910 |  |  |  |  |
|  |  |  |  | 0.2393 | 7.18 | 5 | -0.30 |
| 53-58 | 58.5 | 0.13 | 0.0517 |  |  |  |  |
|  |  |  |  | -0.2429 | -7.29 | 9 | -0.23 |
| 47-52 | 52.5 | -0.54 | 0.29460 |  |  |  |  |
|  |  |  |  | 0.18146 | 5.44 | 5 | -0.08 |
| 41-46 | 46.5 | -1.21 | 0.11314 |  |  |  |  |
|  |  |  |  | 0.08309 | 2.49 | 4 | 8.61 |
| $35-40$ | 40.5 | -1.88 | 0.03005 |  |  |  |  |
|  | 35.5 | -2.44 | 0.00734 | 0.02271 | 0.68 | 3 | 4.41 |
|  | 35.5 | -2.44 | 0.00734 |  |  |  |  |
| $\mathrm{X}^{2}$ |  |  |  |  |  |  | 12.36 |

Based on the table above, the reseracher found that $\mathrm{x}^{2}{ }_{\text {count }}=12.36$ while $\mathrm{x}^{2}$ table $=11.070$ cause $\mathrm{x}^{2}{ }_{\text {count }}>\mathrm{x}^{2}$ table $(12.36>11.070)$ with degree of freedom (dk) $=6-1=5$ and significant level $\alpha=5 \%$. So distribution of VIII-4 class (pre-test) is not normal.
6. Median

| No | Interval | F | Fk |
| :---: | :---: | :---: | :---: |
| 1 | $35-40$ | 3 | 3 |
| 2 | $41-46$ | 4 | 7 |
| 3 | $47-52$ | 5 | 12 |
| 4 | $\mathbf{5 3}-\mathbf{5 8}$ | $\mathbf{9}$ | 21 |
| 5 | $59-64$ | 5 | 26 |
| 6 | $65-70$ | 4 | 30 |

Position of Me in the interval of classes is number 5, that:

$$
\begin{aligned}
\mathrm{Bb} & =52.5 \\
\mathrm{~F} & =5 \\
\mathrm{fm} & =9 \\
\mathrm{i} & =6 \\
\mathrm{n} & =30 \\
1 / 2 \mathrm{n} & =15
\end{aligned}
$$

So :

$$
\begin{aligned}
\mathrm{Me} & =\mathrm{Bb}+\mathrm{i}\left(\frac{n / 2-F}{f m}\right) \\
& =52.5+6\left(\frac{15-5}{9}\right) \\
& =52.5+6(1.11) \\
& =52.5+6.66 \\
& =59.16
\end{aligned}
$$

7. Modus

| No | Interval | F | Fk |
| :---: | :---: | :---: | :---: |
| 1 | $35-40$ | 3 | 3 |
| 2 | $41-46$ | 4 | 7 |
| 3 | $47-52$ | 5 | 12 |
| 4 | $\mathbf{5 3}-\mathbf{5 8}$ | $\mathbf{9}$ | 21 |
| 5 | $59-64$ | 5 | 26 |
| 6 | $65-70$ | 4 | 30 |

$$
\mathbf{M}_{\mathrm{o}}=L+\frac{d_{1}}{d_{1}+d_{2}} i
$$

$\mathrm{L}=52.5$
$\mathrm{d}_{1}=5$
$\mathrm{d}_{2}=5$
i $=6$
So,

$$
\begin{aligned}
\mathrm{M}_{\mathrm{o}} & =52.5+\frac{5}{5+5} 6 \\
& =52.5+0.5(6) \\
& =52.5+3 \\
& =55.5
\end{aligned}
$$

## Appendix 20

## RESULT OF NORMALITY TEST IN POST TEST

## RESULT OF THE NORMALITY TEST OF VIII-2 IN POST-TEST

8. The score of VIII-2 class in post test from low score to high score:

| 65 | 70 | 75 | 75 | 75 | 75 | 80 | 80 | 80 | 80 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 80 | 80 | 80 | 80 | 85 | 85 | 85 | 85 | 85 | 85 |
| 85 | 85 | 85 | 85 | 90 | 90 | 90 | 90 | 95 | 95 |
| 100 |  |  |  |  |  |  |  |  |  |

9. High $=100$

Low $=65$
Range $=$ High - Low
$=100-65$
$=35$
10. Total of Classes $=1+3,3 \log (\mathrm{n})$

$$
\begin{aligned}
& =1+3,3 \log (31) \\
& =1+3,3(1.49) \\
& =1+4.92 \\
& =5.92 \\
& =6
\end{aligned}
$$

11. Length of Classes $=\frac{\text { range }}{\text { total of class }}=\frac{35}{6}=5.83=6$
12. Mean

| Interval Class | F | X | x | fx | $\mathrm{x}^{2}$ | $\mathrm{fx}^{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $65-70$ | 2 | 67.5 | +3 | 6 | 9 | 18 |
| $71-76$ | 4 | 73.5 | +2 | 8 | 4 | 16 |
| $77-82$ | 8 | 79.6 | +1 | 8 | 1 | 8 |
| $83-88$ | 10 | $\mathbf{8 5 . 5}$ | 0 | 0 | 0 | 0 |
| $89-94$ | 4 | 91.5 | -1 | -4 | 1 | 4 |
| $95-100$ | 3 | 97.5 | -2 | -6 | 4 | 12 |


| $i=6$ | 31 | - | - | 12 | - | 58 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |

$$
\begin{aligned}
M x= & M^{1}+i \frac{\Sigma f x^{1}}{N} \\
& =85.5+6\left(\frac{12}{31}\right) \\
& =85.5+6(0.39) \\
& =85.5+2.34 \\
& =87.84
\end{aligned}
$$

$$
\begin{aligned}
\mathrm{SD}_{\mathrm{t}} & =i \sqrt{\frac{\sum f x^{\prime}}{n}-\left(\frac{\sum f x \prime}{n}\right)^{2}} \\
& =6 \sqrt{\frac{58}{31}-\left(\frac{12}{31}\right)^{2}} \\
& =6 \sqrt{1.89-(0.39)^{2}} \\
& =6 \sqrt{1.89-0.152} \\
& =6 \sqrt{1.74} \\
& =6 \times 1.32 \\
& =7.92
\end{aligned}
$$

Table of Normality Data Test with Chi Kuadrad Formula

| Interval <br> of Score | Real <br> Upper <br> Limit | $Z-$ <br> Score | Limit of <br> Large of the <br> Area | Large of <br> area | $f_{h}$ | $f_{0}$ | $\frac{\left(f_{0}-f_{h}\right)}{f_{h}}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |


| $95-100$ | 100.5 | 1.45 | 0.4265 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $89-94$ | 94.5 | 0.74 | 0.2704 | 0.16 | 4.84 | 2 | -0.59 |
| $83-88$ | 88.5 | 0.03 | 0.0120 | 0.26 | 8.01 | 4 | -0.50 |
| $77-82$ | 82.5 | -0.67 | 0.25143 | -0.24 | -7.42 | 8 | -2.08 |
| $71-76$ | 76.5 | -1.38 | 0.08379 | 0.17 | 5.20 | 10 | 0.92 |
| $65-70$ | 70.5 | -2.09 | 0.01831 | 0.07 | 2.03 | 4 | 0.97 |
|  | 64.5 | -2.80 | 0.00256 | 0.02 | 0.49 | 3 | 5.12 |

Based on the table above, the reseracher found that $\mathrm{x}^{2}$ count $=3.84$ while $\mathrm{x}^{2}$ table $=11.070$ cause $\mathrm{x}_{\text {count }}^{2}<\mathrm{x}_{\text {table }}^{2}(3.84<11.070)$ with degree of freedom $(\mathrm{dk})=$ 6-1 = 5 and significant level $\alpha=5 \%$. So distribution of VIII-2 class (post-test) is normal.
13. Median

| No | Interval | F | Fk |
| :---: | :---: | :---: | :---: |
| 1 | $65-70$ | 2 | 2 |
| 2 | $71-76$ | 4 | 6 |
| 3 | $77-82$ | 8 | 14 |
| 4 | $\mathbf{8 3}-\mathbf{8 8}$ | $\mathbf{1 0}$ | 24 |
| 5 | $89-94$ | 4 | 28 |
| 6 | $95-100$ | 3 | 31 |

Position of Me in the interval of classes is number 4, that:

$$
\mathrm{Bb}=82.5
$$

$$
\begin{array}{ll}
\mathrm{F} & =8 \\
\mathrm{fm} & =10
\end{array}
$$

$$
\begin{aligned}
& \mathrm{i} \quad=6 \\
& \mathrm{n}=31 \\
& 1 / 2 \mathrm{n}=15.5
\end{aligned}
$$

So :

$$
\begin{aligned}
\mathrm{Me} & =\mathrm{Bb}+\mathrm{i}\left(\frac{n / 2-F}{f m}\right) \\
& =82.5+6\left(\frac{15.5-8}{10}\right) \\
& =82.5+6(0.75) \\
& =82.5+4.5 \\
& =87
\end{aligned}
$$

14. Modus

| No | Interval | F | Fk |
| :---: | :---: | :---: | :---: |
| 1 | $65-70$ | 2 | 2 |
| 2 | $71-76$ | 4 | 6 |
| 3 | $77-82$ | 8 | 14 |
| 4 | $\mathbf{8 3 - 8 8}$ | 10 | 24 |
| 5 | $89-94$ | 4 | 28 |
| 6 | $95-100$ | 3 | 31 |

$\mathrm{M}_{\mathrm{o}}=L+\frac{d_{1}}{d_{1}+d_{2}} i$
$\mathrm{L}=82.5$
$\mathrm{d}_{1}=8$
$\mathrm{d}_{2}=4$
i $=6$

So,

$$
\begin{aligned}
\mathrm{M}_{\mathrm{o}} & =82.5+\frac{8}{8+4} 6 \\
& =82.5+0.67(6) \\
& =82.5+4.02 \\
& =86.52
\end{aligned}
$$

## RESULT OF NORMALITY TEST IN POST TEST

## RESULT OF THE NORMALITY TEST OF VIII-3 IN POST-TEST

1. The score of VIII-3 class in post test from low score to high score:

| 50 | 55 | 60 | 60 | 60 | 60 | 65 | 65 | 65 | 65 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 65 | 65 | 65 | 65 | 70 | 70 | 70 | 70 | 70 | 70 |
| 70 | 70 | 70 | 75 | 75 | 75 | 75 | 80 | 80 | 85 |

2. High $=85$

Low $=50$
Range = High - Low
$=85-50$
$=35$
3. Total of Classes $=1+3,3 \log (\mathrm{n})$

$$
=1+3,3 \log (30)
$$

$$
=1+3,3(1.477)
$$

$$
=1+4.874
$$

$$
=5.874
$$

$$
=6
$$

4. Length of Classes $=\frac{\text { range }}{\text { total of class }}=\frac{35}{6}=5.83=6$
5. Mean

| Interval Class | F | X | x | fx | $\mathrm{x}^{\prime 2}$ | $\mathrm{fx}^{\prime 2}$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |


| $50-55$ | 2 | 52.5 | +3 | 6 | 9 | 18 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $56-61$ | 4 | 58.5 | +2 | 8 | 4 | 16 |
| $62-67$ | 8 | 64.5 | +1 | 8 | 1 | 8 |
| $68-73$ | 9 | $\mathbf{7 0 . 5}$ | 0 | 0 | 0 | 0 |
| $74-79$ | 4 | 76.5 | -1 | -4 | 1 | 4 |
| $80-85$ | 3 | 82.5 | -2 | -6 | 4 | 12 |
| $i=6$ | 30 | - | - | 12 | - | 58 |

$$
\begin{aligned}
M x & =M^{1}+i \frac{\Sigma f x^{1}}{N} \\
& =70.5+6\left(\frac{12}{30}\right) \\
& =70.5+6(0.4) \\
& =70.5+2.4 \\
& =72.9
\end{aligned}
$$

$$
\begin{aligned}
\mathrm{SD}_{\mathrm{t}} & =i \sqrt{\frac{\sum f x^{2}}{n}-\left(\frac{\sum f x^{\prime}}{n}\right)^{2}} \\
& =6 \sqrt{\frac{58}{30}-\left(\frac{12}{30}\right)^{2}} \\
& =6 \sqrt{1.93-(0.4)^{2}} \\
& =6 \sqrt{1.93-0.16} \\
& =6 \sqrt{1.77} \\
& =6 \times 1.33=7.98
\end{aligned}
$$

Table of Normality Data Test with Chi Kuadrad Formula

| Interval <br> of Score | Real Upper <br> Limit | $Z-$ <br> Score | Limit of <br> Large of the <br> Area | Large of <br> area | $f_{h}$ | $f_{0}$ | $\frac{\left(f_{0}-f_{h}\right)}{f_{h}}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |


| $80-85$ | 85.5 | 1.58 | 0.4429 | 0.15 | 4.39 | 2 | -0.54 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $74-79$ | 79.5 | 0.83 | 0.2967 | 0.26 | 7.94 | 4 | -0.50 |
| $68-73$ | 73.5 | 0.08 | 0.0319 | -0.22 | -6.49 | 8 | -2.23 |
| $62-67$ | 67.5 | -0.68 | 0.24825 | 0.17 | 5.16 | 9 | 0.74 |
| $56-61$ | 61.5 | -1.43 | 0.07636 | 0.06 | 1.85 | 4 | 1.16 |
| $50-55$ | 55.5 | -2.18 | 0.01463 | 0.01 | 0.39 | 3 | 6.69 |
|  | 49.5 | -2.93 | 0.00169 |  |  |  |  |

Based on the table above, the reseracher found that $\mathrm{x}^{2}{ }_{\text {count }}=5.32$ while $\mathrm{x}_{\text {table }}^{2}=11.070$ cause $\mathrm{x}^{2}{ }_{\text {count }}<\mathrm{x}_{\text {table }}^{2}(5.32<11.070)$ with degree of freedom $(\mathrm{dk})=$ 6-1 = 5 and significant level $\alpha=5 \%$. So distribution of VIII-3 class (post-test) is normal.
6. Median

| No | Interval | F | Fk |
| :---: | :---: | :---: | :---: |
| 1 | $50-55$ | 2 | 2 |
| 2 | $56-61$ | 4 | 6 |
| 3 | $62-67$ | 8 | 14 |
| 4 | $\mathbf{6 8}-\mathbf{7 3}$ | $\mathbf{9}$ | 23 |
| 5 | $74-79$ | 4 | 27 |
| 6 | $80-85$ | 3 | 30 |

Position of Me in the interval of classes is number 4, that:

$$
\begin{aligned}
\mathrm{Bb} & =67.5 \\
\mathrm{~F} & =8 \\
\mathrm{fm} & =9
\end{aligned}
$$

$$
\begin{array}{ll}
\mathrm{i} & =6 \\
\mathrm{n} & =30
\end{array}
$$

$$
1 / 2 n=15
$$

So :

$$
\begin{aligned}
\mathrm{Me} & =\mathrm{Bb}+\mathrm{i}\left(\frac{n / 2-F}{f m}\right) \\
& =67.5+6\left(\frac{15-8}{9}\right) \\
& =67.5+6(0.78) \\
& =67.5+4.68 \\
& =72.18
\end{aligned}
$$

7. Modus

| No | Interval | F | Fk |
| :---: | :---: | :---: | :---: |
| 1 | $50-55$ | 2 | 2 |
| 2 | $56-61$ | 4 | 6 |
| 3 | $62-67$ | 8 | 14 |
| 4 | $\mathbf{6 8}-\mathbf{7 3}$ | $\mathbf{9}$ | 23 |
| 5 | $74-79$ | 4 | 27 |
| 6 | $80-85$ | 3 | 30 |

$\mathrm{M}_{\mathrm{o}}=i \sqrt{\frac{\sum f x^{\prime 2}}{n}-\left(\frac{\sum f x \prime}{n}\right)^{2}}$
$\mathrm{L}=67.5$
$\mathrm{d}_{1}=8$
$\mathrm{d}_{2}=4$
i $=6$
So,
$\mathrm{M}_{\mathrm{o}}=67.5+\frac{8}{8+4} \sigma$

$$
=67.5+0.67(6)
$$

$$
=67.5+4.02
$$

$$
=71.52
$$

## Appendix 21

## T-test of the Both Averages in Pre-Test

The formula was used to analyse homogeneity test of the both averages was $t$ -
test, that:

$$
\begin{aligned}
& T t=\frac{M_{1}-M_{2}}{\sqrt{\left(\frac{\left(n_{1}-1\right) s_{1}^{2}+\left(n_{2}-1\right) s_{2}^{2}}{n_{1}+n_{2}-2}\right)\left(\frac{1}{n_{1}}+\frac{1}{n_{2}}\right)}} \\
& T t=\frac{57.90-54.5}{\sqrt{\left(\frac{(31-1) 224.62+(30-1) 255.78}{31+30-2}\right)\left(\frac{1}{31}+\frac{1}{30}\right)}} \\
& T t=\frac{3.4}{\sqrt{\left(\frac{30(224.62)+29(255.78)}{59}\right)(0.032+0.033)}} \\
& T t=\frac{3.4}{\sqrt{\left(\frac{6738.6+7417.62}{59}\right)(0.032+0.033)}} \\
& T t=\frac{3.4}{\sqrt{\left(\frac{14156.22}{59}\right)(0.065)}} \\
& T t=\frac{3.4}{\sqrt{239.94(0.065)}} \\
& T t=\frac{3.4}{\sqrt{15.60}} \\
& T t=0.86 \\
& 3.95
\end{aligned}
$$

Based on researcher calculation result of homogeneity test of the both averages, researcher found that $\mathrm{t}_{\text {count }}=0.86$ with opportunity $(1-\alpha)=1-5 \%=95 \%$ and $\mathrm{dk}=\mathrm{n}_{1}+\mathrm{n}_{2}-2=31+30-2=59, \mathrm{t}_{\text {table }}=1.671$. So, $\mathrm{t}_{\mathrm{count}}<\mathrm{t}_{\text {table }}(0.86<1.671)$ and $\mathrm{H}_{0}$ is accepted, it means no difference the average between the first class as experimental class and the second class as control class in this research.

## Appendix 22

## T-test of the Both Averages in Post-Test

The formula was used to analyse homogeneity test of the both averages was $t$ -
test, that:

$$
\begin{aligned}
& T t=\frac{M_{1}-M_{2}}{\sqrt{\left(\frac{\left(n_{1}-1\right) s_{1}^{2}+\left(n_{2}-1\right) s_{2}^{2}}{n_{1}+n_{2}-2}\right)\left(\frac{1}{n_{1}}+\frac{1}{n_{2}}\right)}} \\
& T t=\frac{83.06-68}{\sqrt{\left(\frac{(31-1) 54.46+(30-1) 56.21}{31+30-2}\right)\left(\frac{1}{31}+\frac{1}{30}\right)}}
\end{aligned}
$$

$$
T t=\frac{15.06}{\sqrt{\left(\frac{30(54.46)+29(56.21)}{59}\right)(0.032+0.033)}}
$$

$$
T t=\frac{15.06}{\sqrt{\left(\frac{1633.8+1630.09}{59}\right)(0.032+0.033)}}
$$

$$
T t=\frac{15.06}{\sqrt{\left(\frac{3263.89}{59}\right)(0.065)}}
$$

$$
T t=\frac{15.06}{\sqrt{55.32(0.065)}}
$$

$$
T t=\frac{15.06}{\sqrt{3.60}}
$$

$$
\begin{aligned}
& T t=\frac{15.06}{1.90} \\
& T t=7.926
\end{aligned}
$$

Based on researcher calculation result of homogeneity test of the both averages, researcher found that $\mathrm{t}_{\text {count }}=7.926$ with opportunity $(1-\alpha)=1-5 \%=$ $95 \%$ and $\mathrm{dk}=\mathrm{n}_{1}+\mathrm{n}_{2}-2=31+30-2=59, \mathrm{t}_{\text {table }}=1.671$. So, $\mathrm{t}_{\text {count }}>\mathrm{t}_{\text {table }}(7.926>$ 1.671) and $\mathrm{H}_{\mathrm{a}}$ is accepted, it means there was the difference average between the first class as experimental class and the second class as control class in this research.

## APPENDIX 23

## Chi-Square Table

| $\mathbf{d k}$ | Significant level |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\mathbf{5 0 \%}$ | $\mathbf{3 0 \%}$ | $\mathbf{2 0 \%}$ | $\mathbf{1 0 \%}$ | $\mathbf{5 \%}$ | $\mathbf{1 \%}$ |
| $\mathbf{1}$ | 0,455 | 1,074 | 1,642 | 2,706 | 3,841 | 6,635 |
| $\mathbf{2}$ | 1,386 | 2,408 | 3,219 | 4,605 | 5,991 | 9,210 |
| $\mathbf{3}$ | 2,366 | 3,665 | 4,642 | 6,251 | 7,815 | 11,341 |
| $\mathbf{4}$ | 3,357 | 4,878 | 5,989 | 7,779 | 9,488 | 13,277 |
| $\mathbf{5}$ | 4,351 | 6,064 | 7,289 | 9,236 | 11,070 | 15,086 |
| $\mathbf{6}$ | 5,348 | 7,231 | 8,558 | 10,645 | 12,592 | 16,812 |
| $\mathbf{7}$ | 6,346 | 8,383 | 9,803 | 12,017 | 14,067 | 18,475 |
| $\mathbf{8}$ | 7,344 | 9,524 | 11,030 | 13,362 | 15,507 | 20,090 |
| $\mathbf{9}$ | 8,343 | 10,656 | 12,242 | 14,684 | 16,919 | 21,666 |
| $\mathbf{1 0}$ | 9,342 | 11,781 | 13,442 | 15,987 | 18,307 | 23,209 |
| $\mathbf{1 1}$ | 10,341 | 12,899 | 14,631 | 17,275 | 19,675 | 24,725 |
| $\mathbf{1 2}$ | 11,340 | 14,011 | 15,812 | 18,549 | 21,026 | 26,217 |
| $\mathbf{1 3}$ | 12,340 | 15,119 | 16,985 | 19,812 | 22,362 | 27,688 |
| $\mathbf{1 4}$ | 13,339 | 16,222 | 18,151 | 21,064 | 23,685 | 29,141 |
| $\mathbf{1 5}$ | 14,339 | 17,222 | 19,311 | 22,307 | 24,996 | 30,578 |
| $\mathbf{1 6}$ | 15,338 | 18,418 | 20,465 | 23,542 | 26,296 | 32,000 |
| $\mathbf{1 7}$ | 16,338 | 19,511 | 21,615 | 24,769 | 27,587 | 33,409 |
| $\mathbf{1 8}$ | 17,338 | 20,601 | 22,760 | 25,989 | 28,869 | 34,805 |
| $\mathbf{1 9}$ | 18,338 | 21,689 | 23,900 | 27,204 | 30,144 | 36,191 |
| $\mathbf{2 0}$ | 19,337 | 22,775 | 25,038 | 28,412 | 31,410 | 37,566 |
| $\mathbf{2 1}$ | 20,337 | 23,858 | 26,171 | 29,615 | 32,671 | 38,932 |
| $\mathbf{2 2}$ | 21,337 | 24,939 | 27,301 | 30,813 | 33,924 | 40,289 |
| $\mathbf{2 3}$ | 22,337 | 26.018 | 28,429 | 32,007 | 35,172 | 41,638 |
| $\mathbf{2 4}$ | 23,337 | 27,096 | 29,553 | 33,196 | 35,415 | 42,980 |
| $\mathbf{2 5}$ | 24,337 | 28,172 | 30,675 | 34,382 | 37,652 | 44,314 |
| $\mathbf{2 6}$ | 25,336 | 29,246 | 31,795 | 35,563 | 38,885 | 45,642 |
| $\mathbf{2 7}$ | 26,336 | 30,319 | 32,912 | 36,741 | 40,113 | 46,963 |
| $\mathbf{2 8}$ | 27,336 | 31,391 | 34,027 | 37,916 | 41,337 | 48,278 |
| $\mathbf{2 9}$ | 28,336 | 32,461 | 35,139 | 39,087 | 42,557 | 49,588 |
| $\mathbf{3 0}$ | 29,336 | 33,530 | 36,250 | 40,256 | 43,773 | 50,892 |
|  |  |  |  |  |  |  |

## APPENDIX 24

## Z-Table

| Z | 0.00 | 0.01 | 0.02 | 0.03 | 0.04 | 0.05 | 0.06 | 0.07 | 0.08 | 0.09 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| -3.9 | 0.00005 | 0.00005 | 0.00004 | 0.00004 | 0.00004 | 0.00004 | 0.00004 | 0.00004 | 0.00003 | 0.00003 |
| -3.8 | 0.00007 | 0.00007 | 0.00007 | 0.00006 | 0.00006 | 0.00006 | 0.00006 | 0.00005 | 0.00005 | 0.00005 |
| -3.7 | 0.00011 | 0.00010 | 0.00010 | 0.00010 | 0.00009 | 0.00009 | 0.00008 | 0.00008 | 0.00008 | 0.00008 |
| -3.6 | 0.00016 | 0.00015 | 0.00015 | 0.00014 | 0.00014 | 0.00013 | 0.00013 | 0.00012 | 0.00012 | 0.00011 |
| -3.5 | 0.00023 | 0.00022 | 0.00022 | 0.00021 | 0.00020 | 0.00019 | 0.00019 | 0.00018 | 0.00017 | 0.00017 |
| -3.4 | 0.00034 | 0.00032 | 0.00031 | 0.00030 | 0.00029 | 0.00028 | 0.00027 | 0.00026 | 0.00025 | 0.00024 |
| -3.3 | 0.00048 | 0.00047 | 0.00045 | 0.00043 | 0.00042 | 0.00040 | 0.00039 | 0.00038 | 0.00036 | 0.00035 |
| -3.2 | 0.00069 | 0.00066 | 0.00064 | 0.00062 | 0.00060 | 0.00058 | 0.00056 | 0.00054 | 0.00052 | 0.00050 |
| -3.1 | 0.00097 | 0.00094 | 0.00090 | 0.00087 | 0.00084 | 0.00082 | 0.00079 | 0.00076 | 0.00074 | 0.00071 |
| -3.0 | 0.00135 | 0.00131 | 0.00126 | 0.00122 | 0.00118 | 0.00114 | 0.00111 | 0.00107 | 0.00104 | 0.00100 |
| -2.9 | 0.00187 | 0.00181 | 0.00175 | 0.00169 | 0.00164 | 0.00159 | 0.00154 | 0.00149 | 0.00144 | 0.00139 |
| -2.8 | 0.00256 | 0.00248 | 0.00240 | 0.00233 | 0.00226 | 0.00219 | 0.00212 | 0.00205 | 0.00199 | 0.00193 |
| -2.7 | 0.00347 | 0.00336 | 0.00326 | 0.00317 | 0.00307 | 0.00298 | 0.00289 | 0.00280 | 0.00272 | 0.00264 |
| -2.6 | 0.00466 | 0.00453 | 0.00440 | 0.00427 | 0.00415 | 0.00402 | 0.00391 | 0.00379 | 0.03680 | 0.00357 |
| -2.5 | 0.00621 | 0.00604 | 0.00587 | 0.00570 | 0.00554 | 0.00539 | 0.00523 | 0.00508 | 0.00494 | 0.00480 |
| -2.4 | 0.00820 | 0.00798 | 0.00776 | 0.00755 | 0.00734 | 0.00714 | 0.00695 | 0.00676 | 0.00657 | 0.00639 |
| -2.3 | 0.01072 | 0.01044 | 0.01017 | 0.00990 | 0.00964 | 0.00939 | 0.00914 | 0.00889 | 0.00866 | 0.00842 |
| -2.2 | 0.01390 | 0.01355 | 0.01321 | 0.01287 | 0.01255 | 0.01222 | 0.01191 | 0.01160 | 0.01130 | 0.01101 |
| -2.1 | 0.01786 | 0.01743 | 0.01700 | 0.01659 | 0.01618 | 0.01578 | 0.01539 | 0.01500 | 0.01463 | 0.01426 |
| -2.0 | 0.02275 | 0.02222 | 0.02169 | 0.02118 | 0.02068 | 0.02018 | 0.01970 | 0.01923 | 0.01876 | 0.01831 |
| -1.9 | 0.02872 | 0.02807 | 0.02743 | 0.02680 | 0.02619 | 0.02559 | 0.02500 | 0.02442 | 0.02385 | 0.02330 |
| -1.8 | 0.03593 | 0.03515 | 0.03438 | 0.03362 | 0.03288 | 0.03216 | 0.03144 | 0.03074 | 0.03005 | 0.02938 |
| -1.7 | 0.04457 | 0.04363 | 0.04272 | 0.04182 | 0.04093 | 0.04006 | 0.03920 | 0.03836 | 0.03754 | 0.03673 |
| -1.6 | 0.05480 | 0.05370 | 0.05262 | 0.05155 | 0.05050 | 0.04947 | 0.04846 | 0.04746 | 0.04648 | 0.04551 |
| -1.5 | 0.06681 | 0.06552 | 0.06426 | 0.06301 | 0.06178 | 0.06057 | 0.05938 | 0.05821 | 0.05705 | 0.05592 |


| -1.4 | 0.08076 | 0.07927 | 0.07780 | 0.07636 | 0.07493 | 0.07353 | 0.07215 | 0.07078 | 0.06944 | 0.06811 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| -1.3 | 0.09680 | 0.09510 | 0.09342 | 0.09176 | 0.09012 | 0.08851 | 0.08691 | 0.08534 | 0.08379 | 0.08226 |
| -1.2 | 0.11507 | 0.11314 | 0.11123 | 0.10935 | 0.10749 | 0.10565 | 0.10383 | 0.10204 | 0.10027 | 0.09853 |
| -1.1 | 0.13567 | 0.13350 | 0.13136 | 0.12924 | 0.12714 | 0.12507 | 0.12302 | 0.12100 | 0.11900 | 0.11702 |
| -1.0 | 0.15866 | 0.15625 | 0.15386 | 0.15151 | 0.14917 | 0.14686 | 0.14457 | 0.14231 | 0.14007 | 0.13786 |
| -0.9 | 0.18406 | 0.18141 | 0.17879 | 0.17619 | 0.17361 | 0.17106 | 0.16853 | 0.16602 | 0.16354 | 0.16109 |
| -0.8 | 0.21186 | 0.20897 | 0.20611 | 0.20327 | 0.20045 | 0.19766 | 0.19489 | 0.19215 | 0.18943 | 0.18673 |
| -0.7 | 0.24196 | 0.23885 | 0.23576 | 0.23270 | 0.22965 | 0.22663 | 0.22363 | 0.22065 | 0.21770 | 0.21476 |
| -0.6 | 0.27425 | 0.27093 | 0.26763 | 0.26435 | 0.26109 | 0.25785 | 0.25463 | 0.25143 | 0.24825 | 0.24510 |
| -0.5 | 0.30854 | 0.30503 | 0.30153 | 0.29806 | 0.29460 | 0.29116 | 0.28774 | 0.28434 | 0.28096 | 0.27760 |
| -0.4 | 0.34458 | 0.34090 | 0.33724 | 0.33360 | 0.32997 | 0.32636 | 0.32276 | 0.31918 | 0.31561 | 0.31207 |
| -0.3 | 0.38209 | 0.37828 | 0.37448 | 0.37070 | 0.36693 | 0.36317 | 0.35942 | 0.35569 | 0.35197 | 0.34827 |
| -0.2 | 0.42074 | 0.41683 | 0.41294 | 0.40905 | 0.40517 | 0.40129 | 0.39743 | 0.39358 | 0.38974 | 0.38591 |
| -0.1 | 0.46017 | 0.45620 | 0.45224 | 0.44828 | 0.44433 | 0.44038 | 0.43644 | 0.43251 | 0.42858 | 0.42465 |
| -0.0 | 0.50000 | 0.49601 | 0.49202 | 0.48803 | 0.48405 | 0.48006 | 0.47608 | 0.47210 | 0.46812 | 0.46414 |

Z-Table

| $\mathbf{z}$ | $\mathbf{0 . 0 0}$ | $\mathbf{0 . 0 1}$ | $\mathbf{0 . 0 2}$ | $\mathbf{0 . 0 3}$ | $\mathbf{0 . 0 4}$ | $\mathbf{0 . 0 5}$ | $\mathbf{0 . 0 6}$ | $\mathbf{0 . 0 7}$ | $\mathbf{0 . 0 8}$ | $\mathbf{0 . 0 9}$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathbf{0 . 0}$ | 0.0000 | 0.0040 | 0.0080 | 0.0120 | 0.0160 | 0.0199 | 0.0239 | 0.0279 | 0.0319 | 0.0359 |
| $\mathbf{0 . 1}$ | 0.0398 | 0.0438 | 0.0478 | 0.0517 | 0.0557 | 0.0596 | 0.0636 | 0.0675 | 0.0714 | 0.0753 |
| $\mathbf{0 . 2}$ | 0.0793 | 0.0832 | 0.0871 | 0.0910 | 0.0948 | 0.0987 | 0.1026 | 0.1064 | 0.1103 | 0.1141 |
| $\mathbf{0 . 3}$ | 0.1179 | 0.1217 | 0.1255 | 0.1293 | 0.1331 | 0.1368 | 0.1406 | 0.1443 | 0.1480 | 0.1517 |
| $\mathbf{0 . 4}$ | 0.1554 | 0.1591 | 0.1628 | 0.1664 | 0.1700 | 0.1736 | 0.1772 | 0.1808 | 0.1844 | 0.1879 |
| $\mathbf{0 . 5}$ | 0.1915 | 0.1950 | 0.1985 | 0.2019 | 0.2054 | 0.2088 | 0.2123 | 0.2157 | 0.2190 | 0.2224 |
| $\mathbf{0 . 6}$ | 0.2257 | 0.2291 | 0.2324 | 0.2357 | 0.2389 | 0.2422 | 0.2454 | 0.2486 | 0.2517 | 0.2549 |
| $\mathbf{0 . 7}$ | 0.2580 | 0.2611 | 0.2642 | 0.2673 | 0.2704 | 0.2734 | 0.2764 | 0.2794 | 0.2823 | 0.2852 |
| $\mathbf{0 . 8}$ | 0.2881 | 0.2910 | 0.2939 | 0.2967 | 0.2995 | 0.3023 | 0.3051 | 0.3078 | 0.3106 | 0.3133 |
| $\mathbf{0 . 9}$ | 0.3159 | 0.3186 | 0.3212 | 0.3238 | 0.3264 | 0.3289 | 0.3315 | 0.3340 | 0.3365 | 0.3389 |
| $\mathbf{1 . 0}$ | 0.3413 | 0.3438 | 0.3461 | 0.3485 | 0.3508 | 0.3531 | 0.3554 | 0.3577 | 0.3599 | 0.3621 |
| $\mathbf{1 . 1}$ | 0.3643 | 0.3665 | 0.3686 | 0.3708 | 0.3729 | 0.3749 | 0.3770 | 0.3790 | 0.3810 | 0.3830 |
| $\mathbf{1 . 2}$ | 0.3849 | 0.3869 | 0.3888 | 0.3907 | 0.3925 | 0.3944 | 0.3962 | 0.3980 | 0.3997 | 0.4015 |
| $\mathbf{1 . 3}$ | 0.4032 | 0.4049 | 0.4066 | 0.4082 | 0.4099 | 0.4115 | 0.4131 | 0.4147 | 0.4162 | 0.4177 |
| $\mathbf{1 . 4}$ | 0.4192 | 0.4207 | 0.4222 | 0.4236 | 0.4251 | 0.4265 | 0.4279 | 0.4292 | 0.4306 | 0.4319 |
| $\mathbf{1 . 5}$ | 0.4332 | 0.4345 | 0.4357 | 0.4370 | 0.4382 | 0.4394 | 0.4406 | 0.4418 | 0.4429 | 0.4441 |
| $\mathbf{1 . 6}$ | 0.4452 | 0.4463 | 0.4474 | 0.4484 | 0.4495 | 0.4505 | 0.4515 | 0.4525 | 0.4535 | 0.4545 |
| $\mathbf{1 . 7}$ | 0.4554 | 0.4564 | 0.4573 | 0.4582 | 0.4591 | 0.4599 | 0.4608 | 0.4616 | 0.4625 | 0.4633 |
| $\mathbf{1 . 8}$ | 0.4641 | 0.4649 | 0.4656 | 0.4664 | 0.4671 | 0.4678 | 0.4686 | 0.4693 | 0.4699 | 0.4706 |
| $\mathbf{1 . 9}$ | 0.4713 | 0.4719 | 0.4726 | 0.4732 | 0.4738 | 0.4744 | 0.4750 | 0.4756 | 0.4761 | 0.4767 |
| $\mathbf{2 . 0}$ | 0.4772 | 0.4778 | 0.4783 | 0.4788 | 0.4793 | 0.4798 | 0.4803 | 0.4808 | 0.4812 | 0.4817 |
| $\mathbf{2 . 1}$ | 0.4821 | 0.4826 | 0.4830 | 0.4834 | 0.4838 | 0.4842 | 0.4846 | 0.4850 | 0.4854 | 0.4857 |
| $\mathbf{2 . 2}$ | 0.4861 | 0.4864 | 0.4868 | 0.4871 | 0.4875 | 0.4878 | 0.4881 | 0.4884 | 0.4887 | 0.4890 |
| $\mathbf{2 . 3}$ | 0.4893 | 0.4896 | 0.4898 | 0.4901 | 0.4904 | 0.4906 | 0.4909 | 0.4911 | 0.4913 | 0.4916 |
| $\mathbf{2 . 4}$ | 0.4918 | 0.4920 | 0.4922 | 0.4925 | 0.4927 | 0.4929 | 0.4931 | 0.4932 | 0.4934 | 0.4936 |
|  |  |  |  |  |  |  |  |  |  |  |


| $\mathbf{2 . 5}$ | 0.4938 | 0.4940 | 0.4941 | 0.4943 | 0.4945 | 0.4946 | 0.4948 | 0.4949 | 0.4951 | 0.4952 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $\mathbf{2 . 6}$ | 0.4953 | 0.4955 | 0.4956 | 0.4957 | 0.4959 | 0.4960 | 0.4961 | 0.4962 | 0.4963 | 0.4964 |
| $\mathbf{2 . 7}$ | 0.4965 | 0.4966 | 0.4967 | 0.4968 | 0.4969 | 0.4970 | 0.4971 | 0.4972 | 0.4973 | 0.4974 |
| $\mathbf{2 . 8}$ | 0.4974 | 0.4975 | 0.4976 | 0.4977 | 0.4977 | 0.4978 | 0.4979 | 0.4979 | 0.4980 | 0.4981 |
| $\mathbf{2 . 9}$ | 0.4981 | 0.4982 | 0.4982 | 0.4983 | 0.4984 | 0.4984 | 0.4985 | 0.4985 | 0.4986 | 0.4986 |
| $\mathbf{3 . 0}$ | 0.4987 | 0.4987 | 0.4987 | 0.4988 | 0.4988 | 0.4989 | 0.4989 | 0.4989 | 0.4990 | 0.4990 |
| $\mathbf{3 , 1}$ | 0,4990 | 0,4991 | 0,4991 | 0.4991 | 0,4992 | 0,4992 | 0,4992 | 0,4992 | 0,4993 | 0,4993 |
| $\mathbf{3 , 2}$ | 0,4993 | 0,4993 | 0,4994 | 0,4994 | 0,4994 | 0,4994 | 0,4994 | 0,4995 | 0,4995 | 0,4995 |
| $\mathbf{3 , 3}$ | 0,4995 | 0,4995 | 0,4995 | 0,4996 | 0,4996 | 0,4996 | 0,4996 | 0,4996 | 0,4997 | 0,4997 |
| $\mathbf{3 , 4}$ | 0,4997 | 0,4997 | 0,4997 | 0,4997 | 0,4997 | 0,4997 | 0,4997 | 0,4997 | 0,4997 | 0,4998 |
| $\mathbf{3 , 5}$ | 0,4998 | 0,4998 | 0,4998 | 0,4998 | 0,4998 | 0,4998 | 0,4998 | 0,4998 | 0,4998 | 0,4998 |
| $\mathbf{3 , 6}$ | 0,4998 | 0,4998 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 |
| $\mathbf{3 , 7}$ | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 |
| $\mathbf{3 , 8}$ | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 |
| $\mathbf{3 , 9}$ | 0,5000 | 0,5000 | 0,5000 | 0,5000 | 0,5000 | 0,5000 | 0,5000 | 0,5000 | 0,5000 | 0,5000 |

## APPENDIX 25

## Percentage Points of the $t$ Distribution

|  | $\mathbf{0 . 2 5}$ | $\mathbf{0 . 1 0}$ | $\mathbf{0 . 0 5}$ | $\mathbf{0 . 0 2 5}$ | $\mathbf{0 . 0 1}$ | $\mathbf{0 . 0 0 5}$ | $\mathbf{0 . 0 0 1}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathbf{P r}$ <br> $\mathbf{d f}$ | $\mathbf{0 . 5 0}$ | $\mathbf{0 . 2 0}$ | $\mathbf{0 . 1 0}$ | $\mathbf{0 . 0 5 0}$ | $\mathbf{0 . 0 2}$ | $\mathbf{0 . 0 1 0}$ | $\mathbf{0 . 0 0 2}$ |
| $\mathbf{1}$ | 1.00000 | 3.07768 | 6.31375 | 12.70620 | 31.82052 | 63.65674 | 318.30884 |
| $\mathbf{2}$ | 0.81650 | 1.88562 | 2.91999 | 4.30265 | 6.96456 | 9.92484 | 22.32712 |
| $\mathbf{3}$ | 0.76489 | 1.63774 | 2.35336 | 3.18245 | 4.54070 | 5.84091 | 10.21453 |
| $\mathbf{4}$ | 0.74070 | 1.53321 | 2.13185 | 2.77645 | 3.74695 | 4.60409 | 7.17318 |
| $\mathbf{5}$ | 0.72669 | 1.47588 | 2.01505 | 2.57058 | 3.36493 | 4.03214 | 5.89343 |
| $\mathbf{6}$ | 0.71756 | 1.43976 | 1.94318 | 2.44691 | 3.14267 | 3.70743 | 5.20763 |
| $\mathbf{7}$ | 0.71114 | 1.41492 | 1.89458 | 2.36462 | 2.99795 | 3.49948 | 4.78529 |
| $\mathbf{8}$ | 0.70639 | 1.39682 | 1.85955 | 2.30600 | 2.89646 | 3.35539 | 4.50079 |
| $\mathbf{9}$ | 0.70272 | 1.38303 | 1.83311 | 2.26216 | 2.82144 | 3.24984 | 4.29681 |
| $\mathbf{1 0}$ | 0.69981 | 1.37218 | 1.81246 | 2.22814 | 2.76377 | 3.16927 | 4.14370 |
| $\mathbf{1 1}$ | 0.69745 | 1.36343 | 1.79588 | 2.20099 | 2.71808 | 3.10581 | 4.02470 |
| $\mathbf{1 2}$ | 0.69548 | 1.35622 | 1.78229 | 2.17881 | 2.68100 | 3.05454 | 3.92963 |
| $\mathbf{1 3}$ | 0.69383 | 1.35017 | 1.77093 | 2.16037 | 2.65031 | 3.01228 | 3.85198 |
| $\mathbf{1 4}$ | 0.69242 | 1.34503 | 1.76131 | 2.14479 | 2.62449 | 2.97684 | 3.78739 |
| $\mathbf{1 5}$ | 0.69120 | 1.34061 | 1.75305 | 2.13145 | 2.60248 | 2.94671 | 3.73283 |
| $\mathbf{1 6}$ | 0.69013 | 1.33676 | 1.74588 | 2.11991 | 2.58349 | 2.92078 | 3.68615 |
| $\mathbf{1 7}$ | 0.68920 | 1.33338 | 1.73961 | 2.10982 | 2.56693 | 2.89823 | 3.64577 |
| $\mathbf{1 8}$ | 0.68836 | 1.33039 | 1.73406 | 2.10092 | 2.55238 | 2.87844 | 3.61048 |
| $\mathbf{1 9}$ | 0.68762 | 1.32773 | 1.72913 | 2.09302 | 2.53948 | 2.86093 | 3.57940 |
| $\mathbf{2 0}$ | 0.68695 | 1.32534 | 1.72472 | 2.08596 | 2.52798 | 2.84534 | 3.55181 |
| $\mathbf{2 1}$ | 0.68635 | 1.32319 | 1.72074 | 2.07961 | 2.51765 | 2.83136 | 3.52715 |
| $\mathbf{2 2}$ | 0.68581 | 1.32124 | 1.71714 | 2.07387 | 2.50832 | 2.81876 | 3.50499 |
| $\mathbf{2 3}$ | 0.68531 | 1.31946 | 1.71387 | 2.06866 | 2.49987 | 2.80734 | 3.48496 |
| $\mathbf{2 4}$ | 0.68485 | 1.31784 | 1.71088 | 2.06390 | 2.49216 | 2.79694 | 3.46678 |
| $\mathbf{2 5}$ | 0.68443 | 1.31635 | 1.70814 | 2.05954 | 2.48511 | 2.78744 | 3.45019 |
| $\mathbf{2 6}$ | 0.68404 | 1.31497 | 1.70562 | 2.05553 | 2.47863 | 2.77871 | 3.43500 |
| $\mathbf{2 7}$ | 0.68368 | 1.31370 | 1.70329 | 2.05183 | 2.47266 | 2.77068 | 3.42103 |
| $\mathbf{2 8}$ | 0.68335 | 1.31253 | 1.70113 | 2.04841 | 2.46714 | 2.76326 | 3.40816 |
| $\mathbf{2 9}$ | 0.68304 | 1.31143 | 1.69913 | 2.04523 | 2.46202 | 2.75639 | 3.39624 |
| $\mathbf{3 0}$ | 0.68276 | 1.31042 | 1.69726 | 2.04227 | 2.45726 | 2.75000 | 3.38518 |
| $\mathbf{3 1}$ | 0.68249 | 1.30946 | 1.69552 | 2.03951 | 2.45282 | 2.74404 | 3.37490 |


| $\mathbf{3 2}$ | 0.68223 | 1.30857 | 1.69389 | 2.03693 | 2.44868 | 2.73848 | 3.36531 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathbf{3 3}$ | 0.68200 | 1.30774 | 1.69236 | 2.03452 | 2.44479 | 2.73328 | 3.35634 |
| $\mathbf{3 4}$ | 0.68177 | 1.30695 | 1.69092 | 2.03224 | 2.44115 | 2.72839 | 3.34793 |
| $\mathbf{3 5}$ | 0.68156 | 1.30621 | 1.68957 | 2.03011 | 2.43772 | 2.72381 | 3.34005 |
| $\mathbf{3 6}$ | 0.68137 | 1.30551 | 1.68830 | 2.02809 | 2.43449 | 2.71948 | 3.33262 |
| $\mathbf{3 7}$ | 0.68118 | 1.30485 | 1.68709 | 2.02619 | 2.43145 | 2.71541 | 3.32563 |
| $\mathbf{3 8}$ | 0.68100 | 1.30423 | 1.68595 | 2.02439 | 2.42857 | 2.71156 | 3.31903 |
| $\mathbf{3 9}$ | 0.68083 | 1.30364 | 1.68488 | 2.02269 | 2.42584 | 2.70791 | 3.31279 |
| $\mathbf{4 0}$ | 0.68067 | 1.30308 | 1.68385 | 2.02108 | 2.42326 | 2.70446 | 3.30688 |

## Percentage Points of the $t$ Distribution

|  | $\mathbf{0 . 2 5}$ | $\mathbf{0 . 1 0}$ | $\mathbf{0 . 0 5}$ | $\mathbf{0 . 0 2 5}$ | $\mathbf{0 . 0 1}$ | $\mathbf{0 . 0 0 5}$ | $\mathbf{0 . 0 0 1}$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $\mathbf{P r}$ <br> $\mathbf{d f}$ | $\mathbf{0 . 5 0}$ | $\mathbf{0 . 2 0}$ | $\mathbf{0 . 1 0}$ | $\mathbf{0 . 0 5 0}$ | $\mathbf{0 . 0 2}$ | $\mathbf{0 . 0 1 0}$ | $\mathbf{0 . 0 0 2}$ |
| $\mathbf{4 1}$ | 0.68052 | 1.30254 | 1.68288 | 2.01954 | 2.42080 | 2.70118 | 3.30127 |
| $\mathbf{4 2}$ | 0.68038 | 1.30204 | 1.68195 | 2.01808 | 2.41847 | 2.69807 | 3.29595 |
| $\mathbf{4 3}$ | 0.68024 | 1.30155 | 1.68107 | 2.01669 | 2.41625 | 2.69510 | 3.29089 |
| $\mathbf{4 4}$ | 0.68011 | 1.30109 | 1.68023 | 2.01537 | 2.41413 | 2.69228 | 3.28607 |
| $\mathbf{4 5}$ | 0.67998 | 1.30065 | 1.67943 | 2.01410 | 2.41212 | 2.68959 | 3.28148 |
| $\mathbf{4 6}$ | 0.67986 | 1.30023 | 1.67866 | 2.01290 | 2.41019 | 2.68701 | 3.27710 |
| $\mathbf{4 7}$ | 0.67975 | 1.29982 | 1.67793 | 2.01174 | 2.40835 | 2.68456 | 3.27291 |
| $\mathbf{4 8}$ | 0.67964 | 1.29944 | 1.67722 | 2.01063 | 2.40658 | 2.68220 | 3.26891 |
| $\mathbf{4 9}$ | 0.67953 | 1.29907 | 1.67655 | 2.00958 | 2.40489 | 2.67995 | 3.26508 |
| $\mathbf{5 0}$ | 0.67943 | 1.29871 | 1.67591 | 2.00856 | 2.40327 | 2.67779 | 3.26141 |
| $\mathbf{5 1}$ | 0.67933 | 1.29837 | 1.67528 | 2.00758 | 2.40172 | 2.67572 | 3.25789 |
| $\mathbf{5 2}$ | 0.67924 | 1.29805 | 1.67469 | 2.00665 | 2.40022 | 2.67373 | 3.25451 |
| $\mathbf{5 3}$ | 0.67915 | 1.29773 | 1.67412 | 2.00575 | 2.39879 | 2.67182 | 3.25127 |
| $\mathbf{5 4}$ | 0.67906 | 1.29743 | 1.67356 | 2.00488 | 2.39741 | 2.66998 | 3.24815 |
| $\mathbf{5 5}$ | 0.67898 | 1.29713 | 1.67303 | 2.00404 | 2.39608 | 2.66822 | 3.24515 |
| $\mathbf{5 6}$ | 0.67890 | 1.29685 | 1.67252 | 2.00324 | 2.39480 | 2.66651 | 3.24226 |
| $\mathbf{5 7}$ | 0.67882 | 1.29658 | 1.67203 | 2.00247 | 2.39357 | 2.66487 | 3.23948 |
| $\mathbf{5 8}$ | 0.67874 | 1.29632 | 1.67155 | 2.00172 | 2.39238 | 2.66329 | 3.23680 |
| $\mathbf{5 9}$ | 0.67867 | 1.29607 | 1.67109 | 2.00100 | 2.39123 | 2.66176 | 3.23421 |
| $\mathbf{6 0}$ | 0.67860 | 1.29582 | 1.67065 | 2.00030 | 2.39012 | 2.66028 | 3.23171 |
| $\mathbf{6 1}$ | 0.67853 | 1.29558 | 1.67022 | 1.99962 | 2.38905 | 2.65886 | 3.22930 |
| $\mathbf{6 2}$ | 0.67847 | 1.29536 | 1.66980 | 1.99897 | 2.38801 | 2.65748 | 3.22696 |
| $\mathbf{6 3}$ | 0.67840 | 1.29513 | 1.66940 | 1.99834 | 2.38701 | 2.65615 | 3.22471 |
| $\mathbf{6 4}$ | 0.67834 | 1.29492 | 1.66901 | 1.99773 | 2.38604 | 2.65485 | 3.22253 |
| $\mathbf{6 5}$ | 0.67828 | 1.29471 | 1.66864 | 1.99714 | 2.38510 | 2.65360 | 3.22041 |
| $\mathbf{6 6}$ | 0.67823 | 1.29451 | 1.66827 | 1.99656 | 2.38419 | 2.65239 | 3.21837 |
| $\mathbf{6 7}$ | 0.67817 | 1.29432 | 1.66792 | 1.99601 | 2.38330 | 2.65122 | 3.21639 |


| $\mathbf{6 8}$ | 0.67811 | 1.29413 | 1.66757 | 1.99547 | 2.38245 | 2.65008 | 3.21446 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $\mathbf{6 9}$ | 0.67806 | 1.29394 | 1.66724 | 1.99495 | 2.38161 | 2.64898 | 3.21260 |
| $\mathbf{7 0}$ | 0.67801 | 1.29376 | 1.66691 | 1.99444 | 2.38081 | 2.64790 | 3.21079 |
| $\mathbf{7 1}$ | 0.67796 | 1.29359 | 1.66660 | 1.99394 | 2.38002 | 2.64686 | 3.20903 |
| $\mathbf{7 2}$ | 0.67791 | 1.29342 | 1.66629 | 1.99346 | 2.37926 | 2.64585 | 3.20733 |
| $\mathbf{7 3}$ | 0.67787 | 1.29326 | 1.66600 | 1.99300 | 2.37852 | 2.64487 | 3.20567 |
| $\mathbf{7 4}$ | 0.67782 | 1.29310 | 1.66571 | 1.99254 | 2.37780 | 2.64391 | 3.20406 |
| $\mathbf{7 5}$ | 0.67778 | 1.29294 | 1.66543 | 1.99210 | 2.37710 | 2.64298 | 3.20249 |
| $\mathbf{7 6}$ | 0.67773 | 1.29279 | 1.66515 | 1.99167 | 2.37642 | 2.64208 | 3.20096 |
| $\mathbf{7 7}$ | 0.67769 | 1.29264 | 1.66488 | 1.99125 | 2.37576 | 2.64120 | 3.19948 |
| $\mathbf{7 8}$ | 0.67765 | 1.29250 | 1.66462 | 1.99085 | 2.37511 | 2.64034 | 3.19804 |
| $\mathbf{7 9}$ | 0.67761 | 1.29236 | 1.66437 | 1.99045 | 2.37448 | 2.63950 | 3.19663 |
| $\mathbf{8 0}$ | 0.67757 | 1.29222 | 1.66412 | 1.99006 | 2.37387 | 2.63869 | 3.19526 |
| $\infty$ |  |  |  |  |  |  |  |

Appendix 26
PHOTO RESEARCH



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