CHAPTER I
INTRODUCTION

1.1 Background

Education is a process that brings permanent changes in student behaviors based on some specific goals. Some of the important goals of science education are providing the students with everlasting learning of scientific concepts and improve students' thinking skills (Karamustafaoglu, 2011).

To realize these aims, the planning, teaching and assessment stages are formed. Assessment stage has an important role to determine whether students' conceptual development has reached an acceptable level or not. One of the most important tasks confronting the teachers is the evaluation of student's performance in education. Evaluation aim is to reach a judgment about student's learning quality with data obtained from the measurement tools (Karamustafaoglu, 2011). In this process, first, it is necessary to test the target behaviors by using high validity and reliability measuring tools. Therefore, an assessment should be done between expected and observed outcomes.

Based on Peraturan Pemerintah No. 19 section 63 in 2005, standardized test was assigned to students at the primary and secondary level. These series of school tests are consisted of mid semester test, final semester test (both for first and second semester), school test and national test. The government sets national test as a formal test that must be taken by students to pass in order to continue into higher education. The result of national test is also used as educational evaluation and reference in order to select prospective of new learners. National test examine the ability of students in certain subjects including biology.

Indonesian Government through the Ministry of Education also put some consideration into the evaluation by participated the International Test scale through programs and survey, there are *Trends in International Mathematics and Science Study* (TIMSS) and the *Program for International Student Assessment* (PISA) that evaluate students participant in reading, mathematics and sains literacy.

The result of TIMSS in Science context, the rank of indonesian students grade VIII of junior high school, can be seen in Table 1.1.

Table 1.1 Indonesian rank in Trends in International Mathematics and Science Study

No.	Year	Number of Participant	Rank of Indonesia
1.	1999	38	34
2.	2003	49	35
3.	2007	49	36
4.	2015	48	45

Identical to the result of TIMSS, Indonesia always ranks at the lower position compared to other participant according to the PISA test, as we can see in the Table 1.2.

Table 1.2 Indonesian rank in Program for International Student Assessment Test

No.	Year	Number of Participant	Rank of Indonesia
1.	2000	41	39
2.	2003	40	38
3.	2006	57	50
4.	2009	65	61
5.	2012	65	64
6.	2015	76	69

(OECD, 2018)

The results obtained by the Indonesian students, questioned us the reason of students' poor performance on the international tests. Contrarily, school and national test had shown a successful result as marked by high score and high graduation level every year. This phenomenon raised question, do school and national tests contain equal cognitive level questions characterized in PISA test's questions or not.

There is no research that have ever been conducted to analyze the biology question cognitive level administered to the students during mid, final semester, National and PISA tests. Hence, the comparison between biology question's cognitive level in school, national, and PISA tests is still unknown.

Its necessary to do that reseach, because the quality assessment is based on the quality of questions. The question levels which are asked in the tests take an important role while assessing students' achievement and developing their critical thinking skills. High level questions can lead students to think more creatively and multidimensionally. Student who continuously encounter with the low level questions, tend to be lower thinkers. The teacher should ask questions which

require students to use the thinking skills that they are trying to develop. Therefore, in a written examination, questions should be used purposefully to achieve well defined goals.

1.2   Problem Identification

Based on the elaboration of the background of the study, the problems are identified as follows :

1. The question level among school, national and PISA tests are different one each other
2. The composition of cognitive level in biology question of school, national and PISA tests are still unknown

1.3   Problem Scope

In order to make this research become more focus, this research will study the limited problems as follows :

1. The composition of cognitive level in biology question of school, national and PISA tests

2. The differences cognitive level among school, national and PISA tests

1.4   Research Questions

1. How is the cognitive level of biology questions in school tests?
2. How is the cognitive level of biology questions in national test?
3. How is the cognitive level of biology questions in PISA test?
4. Are there any differences of biology questions' cognitive level between school and national tests ?
5. Are there any differences of biology questions' cognitive level between school and PISA tests ?
6. Are there any differences of biology questions' cognitive level between national and PISA tests ?

1.5   Research Objectives

1. To know the cognitive level of biology questions in school tests
2. To know the cognitive level of biology questions in national test
3. To know the cognitive level of biology question in PISA test
4. To know the differences in biology questions' cognitive level between school and national tests
5. To know the differences in biology questions' cognitive level between school and PISA tests
6. To know the differences in biology questions' cognitive level between national and PISA tests

1.6   Research Contributions

1. To get data about the cognitive level of biology questions in school, national and PISA tests.
2. To provide information to other researchers who are interested in doing further research.
3. To provide additional information to the teachers in order to contrive school test's question in improving student learning outcomes