# CHAPTER V
# CONCLUSION AND SUGGESTION

## 5.1 Conclusion

The conclusions that can be drawn based on the research results obtained are:

1. The four-tier diagnostic test instrument is a valid and reliable test. The results of validation were conducted by 5 experts, the test instrument obtained valid results and had minor improvements. After the questions were developed, 20 questions were valid and had a high reliable value on tier-1 and tier-3, with a value of 0.759 and 0.719 respectively.
2. The categories of student understanding are divided into understanding of Scientific Concepts (10%), Rarely Misconception (17%), False Negative (14%), Lack of Knowledge (31%), and Misconception (28%) about the Equilibrium of Rigid Body topics. The highest percentage of Lack of Knowledge indicates students who have uncertainty in tier-2 and tier-4 of the answers chosen in tier-1 and tier-3.
3. Learning difficulties experienced by students come from students' internal factors in the talent aspect with the indicator, students' ability to solve physics problems with a percentage influence of 54.69% and the intelligence aspect with the indicator of students' ability to work on physics questions with a percentage influence of 56.25%. The reason given by students in the talent aspect is that physics is complicated. The reasons given by students in the intelligence aspect are slow at solving problems, not understanding, and difficulty to remember formulas. External factors influencing student learning difficulties have a high percentage both in terms of schools, teachers, and families, so that they are included in the category of no effect.

## 5.2 Suggestions

The suggestions that can be useful as a reference in further development or research, namely:

1. The four-tier diagnostic test instrument needs to be tested again in a wider scope, especially in analyzing learning difficulties experienced by students on physics learning topics.

2. The four-tier diagnostic test instrument needs to be tested again in classes that have studied the topic of equilibrium of rigid bodies for one year and can also be tested at various levels.
3. The four-tier diagnostic test instrument can be developed for other physics topics besides the equilibrium of rigid bodies
4. The test instrument can be in the form of multiple choice mixed essays to be able to find out more clearly the difficulties and obstacles of students in working on physics problems so that providing solutions can be right on target
5. Further research can examine solutions to the factors that cause learning difficulties that can improve the learning system at school.