

## CHAPTER V

### CONCLUSION AND SUGGESTION

#### 5.1 Conclusion

Based on the result of research regarding the preparation of five-tier multiple choice diagnostic instrument test to identify misconceptions on reaction rate material, it can be concluded:

1. The feasibility of the five-level multiple-choice diagnostic test instrument assisted by Microsoft Form in identifying misconceptions of grade XI students on the material of reaction rate by considering expert validity tests from the aspects of material, construction, and language obtained an average score of 20.5 indicating a valid test instrument with test items that can be used with minor modifications for effective implementation.
2. A five-level multiple-choice diagnostic test that assisted with the Microsoft Form were used to assess class XI students' reaction rate material. Twenty-two out of thirty valid questions (0.98217 reliability) passed the validity test with a difficulty level of medium and 100% percentage. The discriminatory power indicates that 4 questions were categorised as 'Very good' (6.6%), 18 questions as 'Good' (7%), 10 questions as 'Quite good' (1%), and 2 questions as 'Bad' (1%). The 30-questions diagnostic instrument had 120 distractors and 30 correct answers. 80% of distractors were effective, while 20% of answer distractors remains unsuccessful.
3. A five-level, multiple-choice diagnostic instrument evaluated class XI students' reaction-rate concepts, and revealed 9% prevalence of misconceptions. The assessment found 8% misconceptions about the reaction rate concept, the lowest in the reaction rate sub-material. Most misconceptions about reaction rates (13%) stemmed from the relationship between the law of reaction rate and collision theory. Question 21 had the highest misconception (20%), while question 1 and 22 had the lowest (3%).

## 5.2 Suggestion

1. Educators should conduct a literature review to assess students' comprehension of reaction rate concepts. This approach helps identify students who grasp the concept, struggle with it, or face difficulties. By doing so, educators can prevent misconceptions about reaction rate material and provide appropriate support to students.
2. To address the absence of instruments to identify student misconceptions during learning activities, a five-tier diagnostic test instrument is being utilized to evaluate its effectiveness in identifying student misconceptions related to reaction rate material.
3. The study aims to identify students' misconceptions regarding reaction rate material. To enhance comprehension, remedial learning should be integrated into the curriculum.
4. Develop the five-tier multiple-choice diagnostic test, currently limited to reaction rate, for use with other chemistry materials.
5. The current study focused on SMAN 5 Medan and a sample of 30 respondents. Future researchers should use the five-tier diagnostic test instrument in other educational institutions with larger sample sizes.