**Class\_\_\_\_\_\_ Student ID\_\_\_\_\_\_\_\_\_\_\_\_\_ Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Instructor\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Pre-class Assignment Grade\_\_\_\_\_\_\_\_\_\_\_ Final Grade\_\_\_\_\_\_\_\_\_\_**

**Experiment: Detection of Weak Vibrations via a Double Grating Apparatus**

**Ⅰ. Pre-Lab Preparation**

1. How is the beat frequency generated in this experiment?
2. Why does  represent the number of waves within half a vibration period (T/2)?

**II.** **Recording of Original Data**

1.

Data Recording When the Tuning Fork is in Resonance

|  |  |
| --- | --- |
| Frequency（Hz） |  |
| Number of Waves within Half a Vibration Period |  |

2.

Measuring the Amplitude of the Tuning Fork at Different Driving Frequencies

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Frequency（Hz） |  |  |  |  |  |  |  |  |  |
| Number of Waves within Half a Vibration Period |  |  |  |  |  |  |  |  |  |

|  |  |
| --- | --- |
| **Instructor**  **Signature** |  |

**Ⅲ.** **Data Processing**

Draw a curve of the relationship between the tuning fork amplitude measured at 9 different driving frequencies and the corresponding driving frequency (computer drawing, coordinate paper, etc. are all acceptable)

**Ⅳ.** **Discussion and Conclusions**

**Ⅴ. Questions**

Can the front and back positions of the stationary grating and the moving grating be interchanged? Why?