

**Section Points**

|           |  |
|-----------|--|
| 5         | <b>Objectives</b><br>Describes lab content concisely, adequately, appropriately  |
| 5         | <b>Apparatus</b><br>Clearly list the apparatus used  |
| 15        | <b>Measurements (Task 1)</b><br>Successfully establishes the scientific concept of the lab<br>Effectively presents the objectives and purpose of the lab<br>States hypothesis and provides logical reasoning for it  |
| 15        | <b>Measurements (Task 2)</b><br>Successfully establishes the scientific concept of the lab<br>Effectively presents the objectives and purpose of the lab<br>States hypothesis and provides logical reasoning for it  |
| 15        | <b>Measurements (Task 3)</b><br>Successfully establishes the scientific concept of the lab<br>Effectively presents the objectives and purpose of the lab<br>States hypothesis and provides logical reasoning for it  |
| 20        | <b>Results (All tasks)</b><br>Effective summary of overall findings<br>Presents tables and figures clearly and accurately<br>Successfully integrates verbal and visual representations   |
| 10        | <b>Discussion</b><br>Opens with effective statement of support of hypothesis<br>Backs up statement with reference to appropriate findings<br>Provides sufficient and logical explanation for the statement<br>Sufficiently addresses other issues pertinent to lab |
| 5         | <b>Presentation</b><br>Citations and references adhere to proper format<br>Format of tables and figures is correct<br>Report is written in scientific style: clear and to the point<br>Grammar and spelling are correct  |
| 10        | <b>Overall aims of the report: <i>the student...</i></b><br>Has successfully learned what the lab is designed to teach<br>Demonstrates clear and thoughtful scientific inquiry<br>Accurately measures and analyzes data for lab findings                           |
| [ Total ] |  |
| 100       |  |

**Section Points**

|           |  |
|-----------|--|
| 5         | <b>Objectives</b><br>Describes lab content concisely, adequately, appropriately  |
| 5         | <b>Apparatus</b><br>Clearly list the apparatus used  |
| 15        | <b>Measurements (4.1)</b><br>Successfully establishes the scientific concept of the lab<br>Effectively presents the objectives and purpose of the lab<br>States hypothesis and provides logical reasoning for it   |
| 15        | <b>Measurements (4.2)</b><br>Successfully establishes the scientific concept of the lab<br>Effectively presents the objectives and purpose of the lab<br>States hypothesis and provides logical reasoning for it   |
| 15        | <b>Measurements (4.3)</b><br>Successfully establishes the scientific concept of the lab<br>Effectively presents the objectives and purpose of the lab<br>States hypothesis and provides logical reasoning for it   |
| 20        | <b>Results (All tasks)</b><br>Effective summary of overall findings<br>Presents tables and figures clearly and accurately<br>Successfully integrates verbal and visual representations   |
| 10        | <b>Discussion</b><br>Opens with effective statement of support of hypothesis<br>Backs up statement with reference to appropriate findings<br>Provides sufficient and logical explanation for the statement<br>Sufficiently addresses other issues pertinent to lab |
| 5         | <b>Presentation</b><br>Citations and references adhere to proper format<br>Format of tables and figures is correct<br>Report is written in scientific style: clear and to the point<br>Grammar and spelling are correct  |
| 10        | <b>Overall aims of the report: <i>the student...</i></b><br>Has successfully learned what the lab is designed to teach<br>Demonstrates clear and thoughtful scientific inquiry<br>Accurately measures and analyzes data for lab findings                           |
| [ Total ] |  |
| 100       |  |

**Section Points**

|           |   |
|-----------|---|
| 25        | <p><b>Science and Measurements (Part A)</b><br/>           Successfully establishes the scientific concept of the lab<br/>           Effectively presents the objectives and purpose of the lab<br/>           Presents tables and figures clearly and accurately</p>   |
| 25        | <p><b>Science and Measurements (Part B)</b><br/>           Successfully establishes the scientific concept of the lab<br/>           Effectively presents the objectives and purpose of the lab<br/>           Presents tables and figures clearly and accurately</p>   |
| 20        | <p><b>Science and Measurements (Part C)</b><br/>           Successfully establishes the scientific concept of the lab<br/>           Effectively presents the objectives and purpose of the lab<br/>           Presents tables and figures clearly and accurately</p>   |
| 15        | <p><b>Discussion</b><br/>           Opens with effective statement of support of hypothesis<br/>           Backs up statement with reference to appropriate findings<br/>           Provides sufficient and logical explanation for the statement<br/>           Sufficiently addresses other issues pertinent to lab</p> |
| 5         | <p><b>Presentation</b><br/>           Citations and references adhere to proper format<br/>           Format of tables and figures is correct<br/>           Report is written in scientific style: clear and to the point<br/>           Grammar and spelling are correct</p>  |
| 10        | <p><b>Overall aims of the report: <i>the student...</i></b><br/>           Has successfully learned what the lab is designed to teach<br/>           Demonstrates clear and thoughtful scientific inquiry<br/>           Accurately measures and analyzes data for lab findings</p>                                       |
| [ Total ] |   |
| 100       |   |

**Section Points**

|           |   |
|-----------|---|
| 5         | <b>Section 1</b><br>Correct "Grating constant, d"   |
| 25        | <b>Measurements (1st order)</b><br>Diffraction angles<br>Calculation on wavelengths<br>Calculation on frequencies |
| 25        | <b>Measurements (2nd order)</b><br>Diffraction angles<br>Calculation on wavelengths<br>Calculation on frequencies |
| 10        | <b>Prediction (3rd order)</b>   |
| 35        | <b>Result (Rydberg constant of hydrogen)</b><br>Correct calculations and presentation of final result             |
| [ Total ] |   |
| 100       |   |