

Name:

TITLE OF EXPERIMENT

BALMER SERIES: EXPERIMENT No 2

MODERN PHYSICS LAB

PHYS 393 COURSEWORK

REPORTING SHEET

PART A: SCIENTIFIC KNOWLEDGE AND PLANNING [30 MARKS]

Aim:

Methodology - Draw your set up, explaining the use of the different components you will use to achieve your aim

5

<p>What do you predict according to quantum theory to observe on the translucent screen?</p> <p>Because... (Explain the formation of spectral lines within Quantum Theory, using also sketches)</p>	4
<p>Draw a simplified energy level diagram for a hydrogen atom, showing the Lyman, Balmer and Paschen Series. Explain</p>	3

<p>What does classical theory predict about an electron orbiting the nucleus of an atom?</p>	<p>4</p>
<p>What is meant by a) excitation b) ionisation</p>	<p>2</p>
<p>Explain the Fraunhofer lines (absorption spectrum) of the sun.</p>	<p>3</p>

<p>In a complete solar eclipse the light from the main body of the sun is cut off and only light from the corona of hot gases forming the outer layer reaches the Earth. That would have the following effect on the Fraunhofer lines:</p> <ul style="list-style-type: none">(i) Increase their visibility(ii) Make them disappear(iii) Have no effect on them	3
<p>What values do you predict to get for the (3) wavelengths and R (Rydberg's constant), according to theory?</p>	3
<p>Which factors you suggest should be controlled in order to make sure that your results are accurate and reliable?</p>	3

PART B: OBTAINING EVIDENCE	
<p>Your data. Use the correct units and convert appropriately.</p>	

PART C: ANALYSING AND CONSIDERING YOUR EVIDENCE	
Graph (use graph paper)	
Calculations	
My evidence leads to the following result.	
Compare your results with theoretical values.	

PART D: EVALUATION [10 MARKS]	
What was good or bad about the experiment you did was ...	2
Some ways you could improve the experiment were...	2
You had the following anomalies.	2
The explanation for your anomalies was	2
You believe my evidence is reliable/unreliable for the following reasons.	2