

**Name:**

**TITLE OF EXPERIMENT:**

**THE X-RAY EXPERIMENT No 10**

**MODERN PHYSICS LAB  
PHYS 393 COURSEWORK  
REPORTING SHEET**

**PART A: SCIENTIFIC KNOWLEDGE AND PLANNING**

Aim:

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

Why we use a heavy element as a target, why we choose tungsten?

5

<p>Distinguish between continuous &amp; characteristic X rays. What is Bremsstrahlung radiation?</p> <p>Establish a relation between minimum wavelength and accelerating potential.</p>	ξ
<p>State &amp; explain Moseley's law. How can Moseley's law be explained on the basis of Bohr's theory?</p>	ξ

State Bragg's equation .

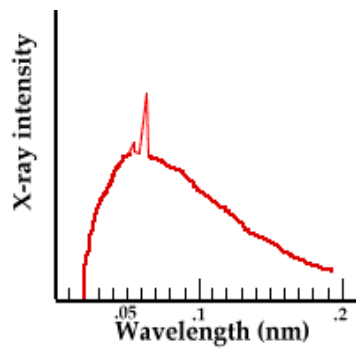
ξ

Bragg's equation will have no solution if :

- 1)  $\lambda > 2d$
- 2)  $\lambda < 2d$
- 3)  $\lambda < d$
- 4)  $\lambda = d$

Using the figure below what is the wavelength of the  $K_{\alpha}$  X-ray line and what is the voltage on the X-ray tube?

ξ



Can we use diffraction grating instead of the crystal in this experiment ( explain) ??	۲
What are the properties of X-rays ?	۴
Which factor you suggest should be controlled in order to make sure that your results are accurate and reliable?	۳