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**كلية العلوم**

**قسم الفيزياء الطبية**

MedicalPhysics**المرحلة : الثانية**

**المادة : البصريات**

**اسم التجربة: " Convex Lens "**

**رقم التجربة : 2**

**مشرفة المختبر: د. دعاء جعفر ضياء**

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**The Purpose of the Experiment**

**ـDetermine the focal length of a convex lens by the method of object and image distance.**

**Introduction**

**A convex lens is a transparent optical device that converges parallel rays of light to a single point called the focus.The lens is thicker in the center than at the edges**

**Theory**

**When an object is placed in front of a convex lens, an image is formed according to the lens formula:**

**{1/f= 1/v+1/u }**

**Where:**

**f: focal length**

**v: image distance**

**u: object distance**

**Tools Used**

1. **Convex lens**
2. **Lens holder**
3. **Optical bench or ruler**
4. **Candle or illuminated object**
5. **Screen**

**Procedure**

**1. Place the convex lens vertically on the optical bench.**

**2. Put the candle (object) at a known distance from the lens.**

**3. Move the screen on the other side until a clear image is obtained**

**4. Measure the image distance .**

**5. Repeat the process for several values of .**

**6. Use the lens formula to calculate the focal length .**

**7. Record all results in the table and find the average focal length.**

|  |  |  |  |
| --- | --- | --- | --- |
| **U** | **V** | **1/U** | **1/V** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

**Sample multiple-choice questions**

**1ـ** **What is the purpose of the experiment Convex Lens ?**

1. **Reflection study.**
2. **Determine the focal length of a convex lens.**
3. **Measuring the speed of light.**
4. **Determining the angle of refraction.**

**2-** **A convex lens is thicker at?**

1. **the edges.**
2. **the center.**
3. **both equal.**
4. **None of the above**

**3ـ** **The point where parallel rays meet after passing through the lens is called?**

1. **optical center.**
2. **Pole.**
3. **principal axis.**
4. **Focus**

**4-Which tool is used to hold the lens in the experiment?**

1. **Lens holder.**
2. **Screen.**
3. **Candle.**
4. **Ruler.**

**5ـ In the convex lens experiment, which part is moved to obtain a clear image?**

1. **Candle.**
2. **Lens.**
3. **Screen.**
4. **Holder.**