**EXPERIMENT 11**

**CONCAVE LENS**

**Day & Date:**

Aim: To determine the focal length of a concave lens using a convex lens.

Theory:

 Focal length of the given convex lens can be calculated using

$$\frac{1}{f}=\frac{1}{v}-\frac{1}{u}$$

 Focal length of a combination of lenses is given by $\frac{1}{f}=\frac{1}{f\_{1}}+\frac{1}{f\_{2}}$

RAY DIAGRAM:

OBSERVATIONS:

1. **Convex Lens:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  Sl. No. | Position of  | Object distance (u) cm | Image distance (v) Cm | Focal Length of the convex lens (f1)  cm |
| Object (O) | Lens(L) | Image (I) |
| 01 |  |  |  |  |  |  |
| 02 |  |  |  |  |  |  |
| 03 |  |  |  |  |  |  |
| 04 |  |  |  |  |  |  |
| 05 |  |  |  |  |  |  |

**Mean focal length of the convex lens (f1) = cm**

1. **Combination of Lenses:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  Sl. No. | Position of  | Object distance (u) cm | Image distance (v) Cm | Focal Length of the combination (f)  cm |
| Object (O) | Lens(L) | Image (I) |
| 01 |  |  |  |  |  |  |
| 02 |  |  |  |  |  |  |
| 03 |  |  |  |  |  |  |
| 04 |  |  |  |  |  |  |
| 05 |  |  |  |  |  |  |

**Mean focal length of t h e combination (f2 ) = cm**

**Hence the focal length of the given concave lens is given by,**

$$\frac{1}{f\_{2}}=\frac{1}{f}+\frac{1}{f\_{1}}$$

**This gives f2 = …………..cm**

**Result:**

**Mean focal length of the given concave lens using a convex lens is**