Almanar Modern School

Ras- Elmatn

Name:_____   Date:_____

Grade 9 (A&B)   Time allotted: 50 min
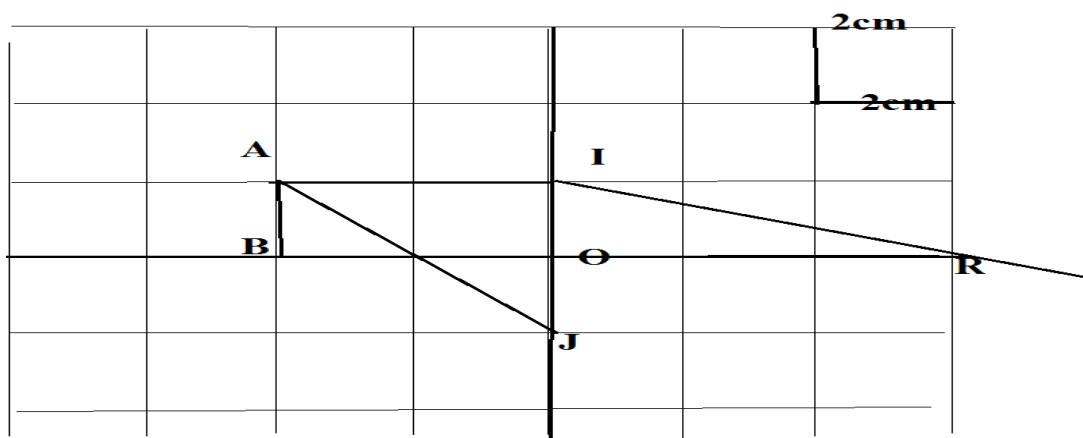
Physics Monthly Exam   .

Question I: (9pts)

Role of a lens

The document below shows the ray diagram of a luminous object (AB) placed perpendicular at A, to the optical axis x'x of a lens (L), an incident ray BI parallel to x'x , its corresponding emergent ray IR and an arbitrary incident ray BJ.

1. Nature and focal length of (L)

   a) (L) is converging. Why?

   b) Specify the position of the image focus F' of (L).

   c) Determine the focal length of (L).

2. Construction of the image

   a) Redraw the above diagram using the same scale and place F' on the diagram.

   b) Trace the path of another particular luminous ray issued from B other than BI determine the position of point B' the image of B.

   c) Construct the image (A'B') of (AB).

   d) Complete then the path of the ray BJ.

3. Characteristics of (A'B')

   a) The image (A'B') is virtual. Why?

   b) Determine the length of (A'B') and its distance d from (L).

4. Role of (L): What is the role of (L) in this situation? Why?

Question II: (7pts)

A student is testing a lens to know if it is diverging or converging, he looks through it at few words, the words appear to be smaller.
1. What is the nature of the image of the words?
2. What can you conclude about the nature of the lens?

We take another lens and we place it in front of a very far object, the image appears 4 cm away from the lens
3. What is the nature of the lens in this case, justify your answer.
4. Determine the focal length of this lens.
5. Draw the diagram of this lens.
6. Draw the path of the rays on the same diagram.
    a. passing through the optical center.
    b. parallel to the optical axis.
    c. passing through F.
    d. passing through 2F.

KNOW DEEPLY
PLAN SMARTLY
ACT CONSISTENTLY
AND LEAD YOURSELF TO THE TOP