

Honors Physics Exam on Light Form I – L

Name _____ Per ____

This exam is worth 75 points. You may use your Notes, PowerPoint, or Text on this exam but NO help from human beings! You MUST HAND WRITE THESE EXAMS in INK!! NO PRINTED or PENCIL PAPERS WILL BE ACCEPTED! EXPLAIN IN COMPLETE SENTENCES AND GIVE EXAMPLES! MATH CALCULATIONS MUST SHOW THE HUP, TWO, THREE, FOUR.

1. Discuss the *Photoelectric Effect*, and give a practical example of its use.
2. Illustrate and tell what causes the *Seasons*.
3. Diagram and explain how Roemer measured the *Speed of Light* using the Moons of Jupiter.
4. Explain how the *LASER* works. Give two practical uses for it.
5. Illustrate the FIVE cases of OBJECTS and IMAGES in the DOUBLE CONVEX LENS.
6. Diagram and contrast the systems of *COLOR* of *LIGHT* and *PIGMENTS*, and give an example of each.
7. Diagram how *Primary* and *Secondary Rainbows* are formed.
8. Define and illustrate these terms: *Rectilinear Propagation*, *Reflection*, *Refraction*, *Interference*, *Diffraction*.
9. Diagram and explain the Michelson-Morley experiment and tell what it showed.
10. Diagram and explain *oil slick & bubble diffraction and interference*.
11. What was Maxwell's big discovery about light and what did the *Quantum Theory* contribute to the theories of light?
12. Illustrate and tell why we have *Blue Skies* and *Red Sunsets*.
13. Illustrate and tell how the *Umbra* and *Penumbra* cause a *Total* and *Partial Eclipse* of the Sun.

SHOW YOUR METHOD OF SOLUTION TO THESE PROBLEMS, (The 1, 2, 3, 4).

14. Equal *illumination* is caused by a 70 cd source at 35 cm and an unknown light at 16 cm. Find the intensity of the unknown.
15. An object 18 cm high is placed 30 cm from a convex lens, focal length 15 cm. Find a) the location of the image, and b) the height of the image.

When finished, STAPLE this exam onto your papers and turn it in on the due date.