

Honors Physics Exam on Light Form S

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. Explain the *Line Spectra of Stars* and what TWO things we learn from the *Line Spectra of Stars*.
2. Diagram and explain the *Michelson-Morley Experiment* and tell what it showed.
3. Diagram how *Primary* and *Secondary Rainbows* are formed.
4. Diagram and explain why we have *Blue Skies* and *Red Sunsets*.
5. Diagram and explain how *Roemer* measured the *Speed of Light* using the satellites of Jupiter.
6. Diagram and explain the *Photoelectric Effect*, and give a practical example of its use.
7. Define and illustrate these terms: *Rectilinear Propagation*, *Reflection*, *Refraction*, *Interference*, *Diffraction*.
8. Illustrate the FIVE cases of *OBJECTS* and *IMAGES* in the *DOUBLE CONVEX LENS*.
9. Describe how the *Doppler Effect* applies to light. What two things does it show us about stars?
10. Diagram and explain why the moon glows red when totally eclipsed.
11. Diagram and explain *Plane Polarization* of Light and give a practical example of its use.
12. Diagram and explain how the *LASER* works. Give two practical uses for it.
13. Diagram and explain oil slick & bubble diffraction and interference.

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

14. An object 8.0 cm high is placed 48.0 cm from a *concave mirror*, focal length 24.0 cm. Calculate a) the location of the image, and b) the height of the image.
15. Equal *illumination* is caused by a 23 cd source at 32 cm and an unknown light at 44 cm. Find the intensity of the unknown.

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