

Honors Physics Exam on Light Form A – C

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. Define these terms and sketch examples: *Rectilinear Propagation, Reflection, Refraction, Interference, Diffraction.*
2. Illustrate and tell how the *Umbra* and *Penumbra* cause a *Total* and *Partial Eclipse* of the Sun.
3. Explain and diagram how *Michelson* measured the *Speed of Light* using an octagonal mirror system between two California mountains.
4. Illustrate the FIVE cases of *OBJECTS* and *IMAGES* in the *CONCAVE MIRROR*.
5. Contrast with diagrams the systems of *COLOR* of *LIGHT* and *PIGMENTS*, and give an example of each.
6. Diagram a *telescope* and show how the object produces its images.
7. Discuss with a diagram *Plane Polarization* of Light and give a practical example of its use.
8. Illustrate and tell why we have *Blue Skies* and *Red Sunsets*.
9. Diagram and explain *oil slick & bubble diffraction and interference*.
10. Diagram how a *mirage* is formed.
11. Explain and illustrate how we can see the sun when it is below the horizon.
12. Explain how the *Doppler Effect* applies to light. What two things does it show us about stars?
13. Explain and illustrate FIVE sources of light.

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

14. Equal illumination is caused by a 14 cd source at 50 cm and an unknown light at 82 cm. Calculate the intensity of the unknown.
15. An object 15 cm high is placed 80 cm from a concave mirror, focal length 20 cm. Calculate 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.