EXAM REVIEW: OPTICS

SNC 2DI

Answer the following in your notes, or on this review paper if there is room to do so.

1. What is the correct order of the colours in the visible spectrum from longest to shortest wavelength?

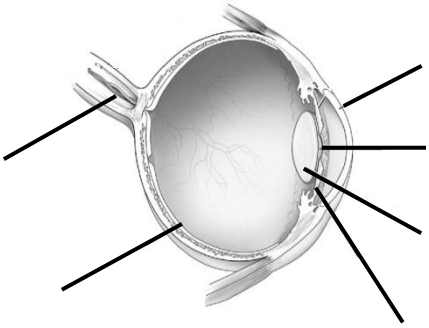
2. Describe the following light sources: natural, incandescence, fluorescence, luminescence (phosphorescence, chemiluminescence, bioluminescence, triboluminescence)

3. Draw an image of a concave and a convex mirror and label the following: principal axis, vertex, focal point, centre of curvature, and the reflective side of the mirror). State one use for each type of mirror.

4. Put the following in order according to the electromagnetic spectrum from shortest to longest wavelength

   X ray Radio Indigo Infrared Gamma Micro Green

5. Label the diagram of the eye and state the function of each structure.



6. Explain what the blindspot is.

7. Define the terms refraction and critical angle.

8. Draw a diagram to illustrate an incident light travelling from glass to air (if glass has a slower speed of light). Also, explain what is happening in Diagram D (is the light speeding up or slowing down)

9. Use the formula for index of refraction to answer the questions below:
   a) The speed of light in a solid is 1.24×10^8 m/s. Calculate the index of refraction.
   b) Calculate the speed of light in flint glass if flint glass has an index of refraction of 1.65

10. What is total internal reflection and what two conditions must occur for this phenomenon to happen? Make sure to make mention of critical angle. Use the diagrams below to help you.

Diagram A:

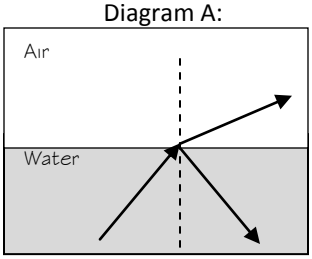


Diagram B:

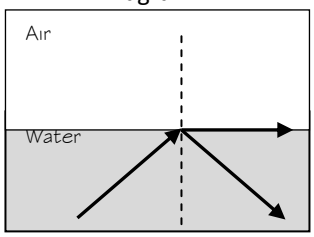


Diagram C:

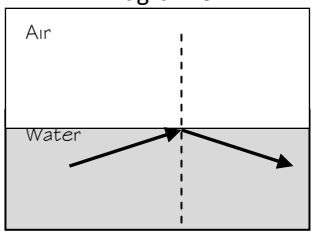
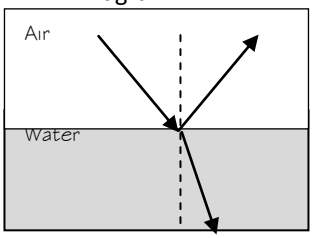


Diagram D:



11. Re-try questions on p.436 – Practice Problems for image calculations for mirrors.

12. Re-try questions on p.500 – Practice Problems for image calculations for thin lenses.

NOTES: