

SMS-204: Integrative marine sciences, physics.

Quiz Lab 6.

- 1. Total reflection of light at a boundary between media can occur only:**
 - a. When there is a change in propagation speed between media.**
 - b. When one medium absorbs and the other does not.**
 - c. When one medium scatters and the other does not.**
 - d. When there is a change in frequencies across the boundary**

- 2. Light and sound:**
 - a. Both propagate in air and water.**
 - b. Both propagate in a vacuum.**
 - c. Both have color.**
 - d. Both are slower in water compared to air.**

- 3. Lens's are useful to:**
 - a. Focus light.**
 - b. Diverge light.**
 - c. Colimate light (change a point source into a parallel beam).**
 - d. All of the above.**

- 4. Snell's cone is due to:**
 - a. scattering**
 - b. absorption.**
 - c. refraction.**
 - d. fluorescence.**

- 5. Fluorescence:**
 - a. Is an emission of photons following an absorption event.**
 - b. Is a spontaneous emission of photons.**
 - c. Is an emission of photons following a scattering event.**
 - d. Is a form of bioluminescence**

- 6. White light**
 - a. from the sun contains a continuum of visible colors.**
 - b. from an incandescent lamp contains a continuum of visible colors.**
 - c. from a fluorescent lamp contains discrete bands of visible colors.**
 - d. all of the above.**

7. Absorption and color of a fluid:

- a. Color of an object is that which is preferentially absorbed.
- b. Color of an object is that which is not preferentially absorbed and then scattered.
- c. Color of an object is that which is not scattered.
- d. Color of an object is that which is not absorbed and then not scattered.

8. A refractometer:

- a. Provides a salinity reading because salinity affects light frequency.
- b. Provides a salinity reading because salinity affects light propagation.
- c. Provides a salinity reading because salinity affects light absorption.
- d. Provides a salinity reading because salinity affects light scattering.

9. Light going through a pin hole:

- a. Inverts the image top to bottom and left to right
- b. Inverts the image top to bottom but not left to right.
- c. Inverts the image left to right but not top to bottom.
- d. Provides a mirror image with similar orientation as the source.

10. When light/sound cross from one medium to another (e.g. water to air), it is most likely that:

- a. The propagation speed changes changes.
- b. The frequency changes.
- c. The absorption properties changes.
- d. The energy changes.