Phys 212 Module 10 Baseline Quiz

Read sections 1.1 - 1.4 in Volume III of University Physics

1. What does the ray aspect of light refer to?
   a) Light is a form of radiation.
   b) Light can be considered as a ray that travels along straight lines unless it is refracted or reflected.
   c) Light is made of small particles called gamma rays.
   d) The dual nature of light first discovered by quantum mechanics, light can act as a particle or a ray.
   e) None of the above.
2. When light is reflected off of a surface, what are the incident and reflected angles measured with respect to?
   a) The plane containing both the incident and reflected light rays.
   b) A line perpendicular to the surface the light is reflected off of.
   c) The plane of the surface the light is reflected off of.
   d) A line in the plane of the surface the light is reflected off of.
   e) None of the above.
3. When light is refracted across a surface, what are the incident and refracted angles measured with respect to?
   a) A line perpendicular to the surface the light is refracted through.
   b) A line in the plane of the surface the light is refracted through.
   c) The plane containing both the incident and refracted light rays.
   d) The plane of the surface the light is refracted through.
   e) None of the above.
4. When light is refracted across a surface, the angle of refraction will be larger than angle of incidence when:

a) The refractive index of the media the light comes from is less than the refractive index of the media it enters.

b) The speed of light in the media the light enters is slower than the speed of light in the media it comes from.

c) The refractive index of the media the light enters is greater than the refractive index of the media it comes from.

d) The speed of light in the media the light enters is greater than the speed of light in the media it comes from.

e) None of the above.

5. The speed of light in vacuum is
   a) It depends on the type of glass, but typically around $4.51 \times 10^8\,\mathrm{m\,s^{-1}}$.

   b) Light cannot travel in glass, it is always reflected.

   c) It is zero.

   d) It depends on the type of glass, but typically around $1.94 \times 10^8\,\mathrm{m\,s^{-1}}$.

   e) None of the above.

6. Which of the following conditions are required to observe light dispersion through media (choose all that are required)
   a) More than one color of light must enter the media.

   b) The media must be a prism.

   c) The media must be a solid.

   d) The refractive index of the media must depend on the wavelength of light.

   e) None of the above.

7. Total internal reflection can occur when:
   a) The refractive index of the incident material is equal to the refractive index of the refractive material.

   b) The refractive index of the incident material is less than the refractive index of the refractive material.

   c) The refractive index of the incident material is greater than the refractive index of the refractive material.

   d) None of the above.

8. A light ray enters a piece of plastic from water and bends toward the surface normal. The refractive index of the plastic is:
   a) greater than that of water.

   b) equal to that of water.

   c) not enough information

   d) less than that of water.

   e) None of the above.

9. A light ray enters a piece of plastic from water and does not bend. The refractive index of the plastic is:
   a) greater than that of water.
   b) less than that of water.
   c) equal to that of water.
   d) not enough information
   e) None of the above.

10. A light ray coming from water to air will bend:
   a) not enough information.
   b) toward the normal.
   c) away from the normal.
   d) it will only bend when going from air to water.
   e) None of the above.