

Physics II

Light Scattering

Problem 1.- Why is the sky blue?

- a) Because it reflects the color of the ocean.
- b) Because oxygen is blue.
- c) Blue light is scattered more than red light.
- d) Light is polarized by reflection.

Solution: Blue light is scattered more than red light (**c**)

Problem 2.- Why is water blue? Choose the best answer:

- a) Because it absorbs red light by excitation of the OH bond vibration.
- b) Impurities in water scatter blue light more than red light.
- c) Water has a very high index of refraction.
- d) Because the water molecule is polar.

Solution: Because it absorbs red light (**a**)

Problem 3.- True (T) or False (F):

- () The moon looks red at moon-set because the atmosphere scatters blue light.
- () Nearsightedness is corrected with positive power lenses.

Solution:

- (**T**) The moon looks red at moon-set because the atmosphere scatters blue light.
- (**F**) Nearsightedness is corrected with positive power lenses.

Problem 4.- Why does the sun look red at sunset?

Solution: Blue light is scattered more than red light by the molecules in air, so at sunset, when the light of the sun must go through much more air than at noon, most of the blue light is scattered, leaving mainly red light.