Which of these does the electromagnetic spectrum not include?

A. Radio.
B. Sound.
C. Light.
D. X-rays.
What is the fundamental source of electromagnetic waves?

A. Moving protons.
B. The Sun.
C. Accelerating electrons.
D. Neutrons.
In this list, which electromagnetic wave has the longest wavelength?

A. Visible light waves.
B. X-rays.
C. Radio waves.
D. These are not electromagnetic.
Which of these has the greatest speed in a vacuum?

A. Radio waves.
B. Microwaves.
C. Gamma rays.
D. All the same.
Light is produced by shaking

A. atoms.
B. molecules.
C. electrons.
D. None of these.
The kind of wave produced by a vibrating source is

A. sound.
B. light.
C. Both of the above.
D. Neither of the above.
Clear window glass is transparent to

A. visible light.
B. long-wavelength infrared light.
C. short-wavelength ultraviolet light.
D. All of the above.
Strictly speaking, the photons of light that shine on glass are

A. the ones that travel through and exit the other side.
B. not the ones that travel through and exit the other side.
C. absorbed and transformed to thermal energy.
D. diffracted.
When ultraviolet light shines on glass, electrons in the glass material are made to

A. resonate.
B. undergo excitation.
C. reflect.
D. refract.
When infrared radiation shines on glass, molecules in the glass material are made to

A. resonate.
B. undergo excitation.
C. reflect.
D. refract.
An axis of sight is reversed when you look at yourself in a plane mirror. That reversed axis is

A. left and right.
B. up and down.
C. front and back.
D. None are really reversed.
How much of yourself you see in a mirror depends on

A. the height and width of the mirror.
B. your distance from the mirror.
C. Both of these.
D. None of these.
Diffuse reflection occurs when the sizes of surface irregularities are

A. small compared to the wavelength of reflected radiation.
B. large compared to the wavelength of reflected radiation.
C. Both of the above.
D. None of the above.
When light is refracted in traveling at an angle from one medium to another, the light

A. changes speed.
B. changes direction.
C. Both of these.
D. None of these.
A mirage is caused by atmospheric

A. reflection.
B. refraction.
C. dispersion.
D. polarization.
Which of these colors corresponds to the highest frequency?

A. Red.
B. Green.
C. Blue.
D. Violet.
When the color red is seen on your TV screen, the phosphors being activated on the screen are

A. mainly yellow.
B. blue and red.
C. green and yellow.
D. None of these.
A red rose will not appear red when illuminated with only

A. red light.
B. orange light.
C. white light.
D. cyan light.
The color least likely to appear in a soap bubble is

A. red.
B. magenta.
C. cyan.
D. yellow.
The solar radiation curve is

A. the path the Sun takes at nighttime.
B. a plot of amplitude versus frequency for sunlight.
C. a plot of brightness versus frequency of sunlight.
D. a plot of wavelength versus frequency of sunlight.
Red, green, and blue light overlap to form

A. red light.
B. green light.
C. blue light.
D. white light.
When light passes from air into a glass lens, the speed of light in the glass is

A. slowed.
B. speeded up.
C. unchanged.
D. none of the above.
When light waves separate when refracting through a prism or lens, we say the light undergoes

A. reflection.
B. interference.
C. dispersion.
D. polarization.
A condition for viewing a rainbow is that the viewer be

A. between the Sun and the raindrops.
B. behind the Sun and the raindrops.
C. Both of the above.
D. Neither of the above.
A secondary rainbow is dimmer than a primary bow due to

A. color being spread over a wider bow.
B. color reversal.
C. both an extra internal reflection and partial refraction.
D. decreased dispersion.
If light didn’t slow down when passing from air to a transparent medium, there would be no

A. lenses.
B. rainbows.
C. eyeglasses.
D. All of these would be absent.
The redness of a sunset sky is evidence that

A. blue light has been scattered away, leaving light of lower frequencies.
B. light of all colors scatters about equally.
C. light changes its speed when it scatters.
D. atmospheric refraction is alive and well.
A blue sky is evidence that light of

A. lower frequencies scatters more.
B. higher frequencies scatters more.
C. all colors scatters about equally.
D. None of these.
Polarization is a property of what kind of waves?

A. Transverse.
B. Longitudinal.
C. All waves.
D. None of these.
At what angle will two horizontal polarizers, one atop the other, need to be arranged so that no light transmits?

A. 0 degrees.
B. 45 degrees.
C. 90 degrees.
D. 180 degrees.