1. C Radio waves are composed of very low energy photons, having wavelengths that may extend several meters.

2. B Utilize Snell's law to solve this problem:

$$n_1 \sin \theta_1 = n_2 \sin \theta_2$$

$$(1)\left(\frac{\sqrt{2}}{2}\right) = (1.5) \sin \theta_2$$

$$\theta = \sin^{-1}\left(\frac{\sqrt{2}}{3}\right) = \sin^{-1}\left(\frac{1}{2}\right) = 30^\circ$$

3. D

4. C We can see in the illustration that blue light is refracted more than red light. Therefore, the prism is more optically dense to the blue light (i.e. blue travels more slowly than the red light through quartz).

5. C $c = f\lambda$

6. B If we apply Snell's law to interpret refraction at the prism:air border:

$$n_1 \sin \theta_1 = n_2 \sin \theta_2$$

$$(1.6)\,\frac{\sqrt{2}}{2} = (1) \sin \theta_2$$

$$\sin^{-1} \theta_2 > 1$$

$$\theta_2 = \varnothing$$

We see that 45^o is beyond the critical angle. Therefore, we see internal reflection.

7. B Both polarization and interference can be suitably explained by the wave nature of light. The photoelectric effect, on the other hand, the liberation of electrons from matter by light of various frequencies, was explained by Einstein, who described the behavior by assuming that the radiant energy was transferred to the substance in discreet amounts (quanta).

8. D All characterize electromagnetic radiation, though not sound waves.

9. C Let's make use of the lens/mirror equation and the magnification equation:

$$\frac{1}{p} + \frac{1}{q} = \frac{1}{f}$$

10. B