

**Q2. The phenomena involved in the reflection of radio waves by ionosphere is similar to**

**(a) reflection of light by a plane mirror**

**(b) total internal reflection of light in air during a mirage**

**(c) dispersion of light by water molecules during the formation of a rainbow**

**(d) scattering of light by the particles of air**

**Solution:** (b) Radio waves are reflected by a layer of atmosphere called the Ionosphere, so they can reach distant parts of the Earth. The reflection of radio waves by ionosphere is due to total internal reflection. It is the same as total internal reflection of light in air during a mirage, i.e., angle of incidence is greater than critical angle.

Important point: The ionized part of the Earth's atmosphere is known as the ionosphere. Ultraviolet light from the sun collides with atoms in this region knocking electrons loose. This creates ions, or atoms with missing electrons. This is what gives the Ionosphere its name- and it is the free electrons that cause the reflection and absorption of radio waves.