Meteorology Radiation and Greenhouse

1. What does color tell us about temperature and when?
2. Why can’t we see at night?
3. Why isn’t the Earth’s surface a frozen lump of ice?
4. The Sun, as seen from space, is a yellow-white star. Of course, the Sun generates all colors of light, but yellow predominates. As the Sun ages and cools, will it’s light become more reddish or more bluish? Why?
5. Consider a conventional incandescent light bulb with clear glass that is connected to a source of electricity controlled via a dimmer switch. Turn on the light and slowly rotate the switch, allowing more current to pass through the circuit. At first, the bulb’s filament glows a deep red, then a bright orange, then an even brighter yellow before glowing very bright white. Explain this color-shifting phenomenon.
6. Compared to Mercury, Venus is located almost twice as far from the Sun and receives only a fraction of the solar radiation. Yet it’s surface temperatures are hotter than Mercury’s. Why?
7. What is the difference between Planck’s Law and Wien’s Law?
8. How is the atmosphere heated? Explain.
9. What color of the electromagnetic spectrum is absorbed by the ozone layer? Explain.
10. What color of the electromagnetic spectrum is absorbed by water vapor in the atmosphere? Explain.
11. What color of the electromagnetic spectrum is absorbed by Earth? Explain.
12. What color of the electromagnetic spectrum is emitted by the Earth? Explain.
13. According to Wien’s law, how is wavelength of light related to temperature?
14. What has a longer wavelength, ultraviolet or infrared?
15. What has a longer wavelength, Blue or red light?
16. Explain how the earth’s atmosphere acts as a blanket? What is the analogy?