

1-2

(a)

$$\lambda_{max} = \frac{2898.9 \times 10^{-6} m \cdot K}{T}$$

$$\lambda_{max}(T = 8500K) = \frac{2898.9 \times 10^{-6} m \cdot K}{8500K} \cong 0.34 \mu m$$

$$\lambda_{max}(T = 850K) = \frac{2898.9 \times 10^{-6} m \cdot K}{850K} \cong 3.4 \mu m$$

$$\lambda_{max}(T = 273.15K) = \frac{2898.9 \times 10^{-6} m \cdot K}{273.15K} \cong 10.6 \mu m$$

(b)

$$E = \sigma T^4$$

$$E(T = 8500K) = 5.67 \times 10^{-8} \times 8500^4 \cong 3 \times 10^8 W \cdot m^{-2}$$

$$E(T = 850K) = 3 \times 10^4 W \cdot m^{-2}$$

$$E(T = 273.15K) \cong 320 W \cdot m^{-2}$$

Mohammad Behtaj & Adel Sepehri

