Maratea Remote Sensing Seminar
Menzel / Revercomb / Antonelli
22 – 31 May 2003
Quiz 1 (10 minutes)

Name:____________________________

1. Concerning Planck's radiation law:

(T) (F) The area under the Planck curve for isotropic radiation $\iint B_\lambda \, d\lambda \, d\Omega$ has units of energy/ time/ area.

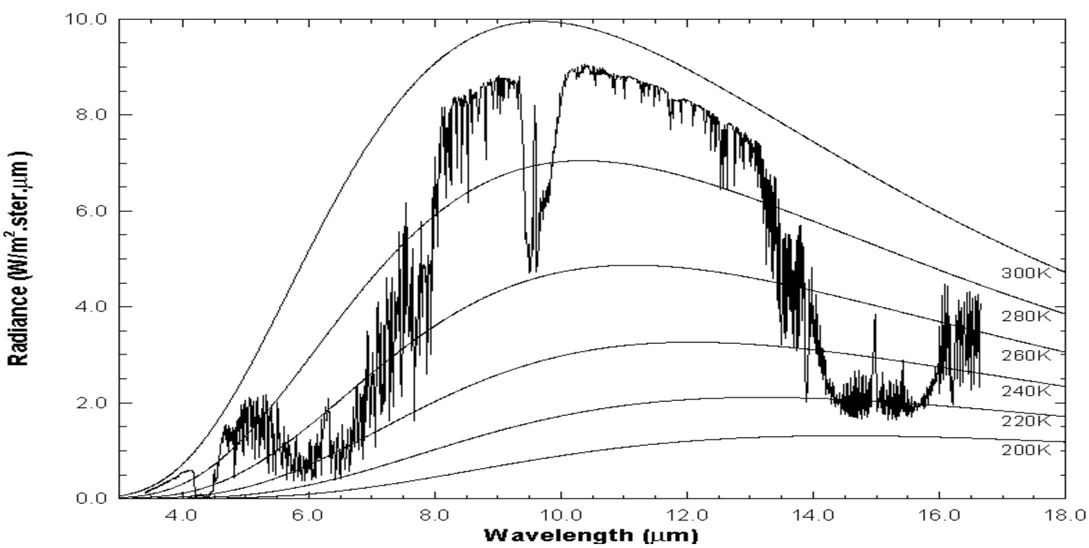
(T) (F) Wien's law can be derived by differentiating the Planck function B_λ with respect to temperature and equating the result with zero.

(T) (F) Radiance from a hotter source is greater at all wavelengths than the radiance from a cooler source (eg. if $T_1 > T_2$ then $B_\lambda(T_1) > B_\lambda(T_2)$ for all λ.).

(T) (F) The maximum of B_λ (radiance = irradiance per unit wavelength) versus λ (wavelength) is proportional to temperature to the fourth power, T^4.

(T) (F) For large wavelengths B_λ(radiance) is directly proportional to temperature.

2. Concerning the earth emitted radiances



(T) (F) The spectral region 10.5 to 12 um is in a window region of the atmosphere.

(T) (F) The absorption band centers for H2O, O3, and CO2 appear near 15, 9.7, and 6.5 um respectively.

(T) (F) The tropopause temperature for this scene is roughly 220 K.

(T) (F) For a clear scene, the brightness temperature BT(13.3 um) is typically colder than BT(13.9 um).

(T) (F) 1% increase in temperature produces a larger percentage increase in radiance at 4 um than 11 um.