3. a) In the photoelectric effect, light of a given wavelength is incident on a metal surface in a vacuum and, if the wavelength is short enough, causes electrons to be emitted. If W is the work function of the metal surface and T is the kinetic energy of the electrons, then their relation to wavelength is given by

$$C/\lambda = T+W$$

Find the constant C in units of eV-nm.

b) If W = 4.7 eV, what wavelength of light is required to barely eject an electron?

c) If W = 4.7 eV and T = 1.5 eV, what is the wavelength of the light?

4. Given the Debye temperatures for the following materials,

Material	T_D(K)
Pb	105
Au	165
Al	428
Fe	470
Si	645
Diamond	2230

Find the corresponding maximum frequencies for the waves in these materials according to the simple Debye model.