1)  
   a) Based on the allotropic phase diagram shown below, rank the phases shown in terms of density.
   b) Which phase do you predict has a higher enthalpy, T or γ?

[Allotrop phase diagram]

2) The melting temperature of gold is 1337 K under ambient pressure. Estimate the melting temperature of pure gold under 1 GPa pressure. [Be careful with your signs.]

3)  
   a) Estimate the driving force for solidification of silicon at a temperature 5 K below the equilibrium melting point.
   
   b) Derive the expression you used in a). Be sure to specify the key assumption(s).